MP200

Product Manual

- Welcome
  - Overview
    - Components
  - Safety Notices
  - Specifications
- Installation Guide
- Configuration Guide
- Integration Guide
- Troubleshooting
- Service
- Contact Us

2110026 Rev 2.0
March 2000

Welcome to the MP200 Radio Modem

The MP200 Series are a family of radio modems designed to use existing cellular infrastructure to send and receive data. These products support Class I (3 Watt) transmission to provide the widest possible coverage area.

A GPS Option is also available in the MP200 and MP210 models. If requested, this option is pre-installed at the factory. Documentation related to GPS is covered in a separate section, along with additional details in the Integration Guide.

Your MP200 Series Components

All MP200 Series packages will include the following components:

- MP200 radio modem.
- Power Harness.
- Sierra Wireless Product CD-ROM with enabling Software and this Documentation including a 3 Year Warranty.
- Warranty Registration Card.
- 6 Screws with Washers.
- Mounting Template.
- Quick Start Guide.

The MP205 and MP210 with voice capability will also include:

- Telephone Handset.

Additional accessories are available from Sierra Wireless. These include:

- Serial Connector Cables (an assortment of lengths are available).
- Approved Cellular Antennas.
- GPS antennas (Magnetic or Hard Mount options).

For details on these and other Sierra Wireless accessories contact sales or visit our web site.

o Welcome (top)
  o Overview
  o Safety Notices
    o Hazards
    o Regulatory
    o Patents
  o Specifications

Important Notice

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as a MP200 Series radio modem are used in a normal manner with a well-constructed network, they should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless, Inc. accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using a MP200 Series radio modem, or for failure of the MP200 Series modem to transmit or receive such data.

Safety and Hazards

Do not operate the MP200 Series modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the modem **MUST BE TURNED OFF**. The radio modem can transmit signals that could interfere with this equipment.

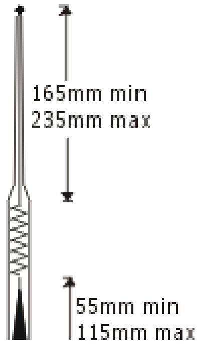
Do not operate your MP200 Series modem in close proximity to any aircraft, whether the aircraft is on the ground or in flight. Near aircraft, the radio modem **MUST BE TURNED OFF**. When operating, the MP200 Series radio modem can transmit signals that could interfere with various onboard systems.

The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

WARNING - The FCC has developed guidelines to reduce any possible hazard due to exposure of the human body to electromagnetic radiation (i.e. to radio waves). This device is approved for operation using a 3dB gain Cellular Mobile whip antenna with at least 0.5dB cable loss, as described in the filing. The antenna installation must provide a separation distance of 20cm (8") or more between the antenna and all persons to satisfy MPE compliance.

WARNING - For FCC compliance only antennas meeting the following attributes should be used:

- Rated gain of 3dBd
- Collinear (coil style) design with dimensions as shown in the illustration at right. The antenna may be encapsulated or open.
- Mount designed for a horizontal metal surface of vehicle using either magnetic or through-hole hard mounting.



- Cable loss of more than 0.5dB.

Regulatory Information

The equipment certifications appropriate to your device are marked on the device and the accompanying product specific information. Where appropriate, the use of the equipment is subject to the following conditions:

CAUTION - Unauthorized modifications or changes not expressly approved by Sierra Wireless, Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

WARNING (EMI) - United States FCC Information - This equipment has been tested and found to comply with the limits pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in an appropriate installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

WARNING (EMI) - Canada - This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

Patents and Trademarks

Portions of this product are covered by some or all of the following US patents: 5515013, 5617106, 5629960, 5682602, 5748449, 5845216, 5845553, 5878234, 5890057, and other patents pending.

The information in this manual is subject to change without notice and does not represent a commitment on the part of Sierra Wireless, Inc. Sierra Wireless, Inc. shall not be liable for incidental or consequential damages resulting from the furnishing, performance, or use of this manual.

All brand or product names, logos, trademarks, etc. mentioned in this manual are owned by their respective companies.

Technical Specifications

MP200 Series radio modem

Compliance:	FCC Parts 15 and 22 Industry Canada RSS-128, ICES-003
Compatibility:	CDPD Release 1.1 EIA/IS-19B, IS-91 EIA/TIA-553
CSC Data Rates:	CSC data CCITT V.32*bis* 14400bps CSC fax TIA/EIA-578 Class I or II
Voltage:	Standard vehicle battery 11 - 16 Vdc (13.8 Vdc nominal)
Current:	Power Reduction Mode: 25mA (typical) **CDPD:** Stand-by (Sleep): 110mA (350mA w/GPS) Enabled (Receive): 370mA (550mA w/GPS) Maximum Transmit: 1.7A (2.0A w/GPS) **CSC (AMPS):** Enabled (Receive): 350mA (600mA w/GPS) Maximum Transmit: 1.7A (2.0A w/GPS)
Transmitter Power:	Class I mobile Up to 4.5 Watts ERP from device (depending on antenna/cabling)
Host Interface:	DB-9 at RS-232 level
Antenna Interface:	50 ohm TNC RF connector
GPS Antenna Interface:	SMB RF connector

Environmental Specifications

Operating Temp:	-30 to +70° C (restricted duty cycle) -30 to +60° C (un-restriced duty cycle)
Storage Temp:	-40 to +80° C
Humidity:	5 - 95%, non-condensing
Vibration:	MIL-STD-810E,I-3.4.9.

Use the document map to jump to a subject of interest or turn the pages to read the full manual.

Page Top   Next Page

Document Map

Back to Product List

SIERRA WIRELESS

MP200

Hardware Installation Guide

o **Product Manual**

o **Installation Guide**

  o Overview
  o Equipment Req.
  o Mounting
  o RF Antenna
  o Power Harness
  o Serial Cable
  o Handset
  o I/O Devices
  o GPS Installs

o **Configuration Guide**
o **Integration Guide**
o **Troubleshooting**
o **Service**
o **Contact Us**

2110246 Rev 1.0
March 2000

Welcome to the MP200 Series Hardware Installation Guide

This guide provides instructions on installing all models of the MP200 hardware in vehicles. For instructions regarding fixed (non-mobile) implementations for applications such as telemetry, see the Fixed Installation Guide.

For instructions on installing the enabling software and configuring the modem, refer to the MP200 Configuration Guide. If you are designing an interface to the modem or require more information about the GPS (Global Positioning System) module, refer to the MP200 Integration Guide.

The MP200 Product Line

- **MP200 -** Cellular Digital Packet Data (CDPD) only.
- **MP205 -** Circuit Switched Cellular (CSC) only.
- **MP210 -** Multi-mode (CDPD and CSC).
- **Voice -** The MP205 and MP210 have an option that allows for voice communication in CSC mode. Model numbers with a 'V' next to them (MP205V and MP210V) have this option.
- **GPS -** A Global Positioning System module is optional on the MP200 and MP210. Model numbers followed by '-GPS' (eg. MP200-GPS, MP210V-GPS) have this option.

---

o Installation Guide (top)

  o **Overview**
  o Equipment Req.
  o Mounting
  o RF Antenna
  o Power Harness
  o Serial Cable
  o Handset
  o I/O Devices
  o GPS Installs

Overview

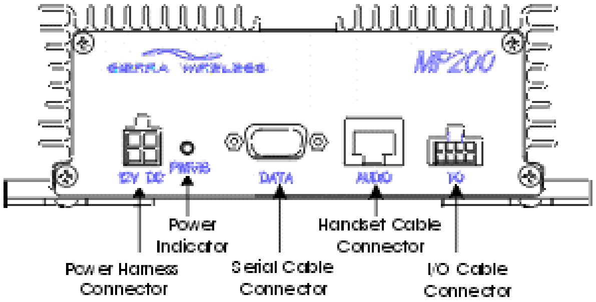
Installing the MP200 involves:

- mounting the modem;
- mounting the RF antenna and connecting the antenna cable;
- installing the power harness;
- installing the serial cable that connects the MP200 to a computer;
- for the voice models, connecting the handset.
- for the GPS models, mounting a GPS antenna and connecting the antenna cable;
- for differential GPS implementations, mounting a GPS differential receiver and antenna and installing the I/O cable.

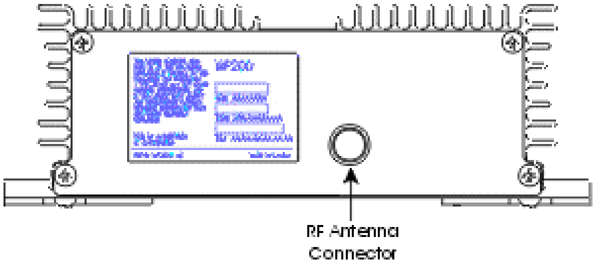
Other devices, such as a panic button, on/off sensor or analog gauge may be installed with the MP200 using the I/O port.

Connecting a speaker to the **AUDIO** port is an option that allows for CSC diagnostics.

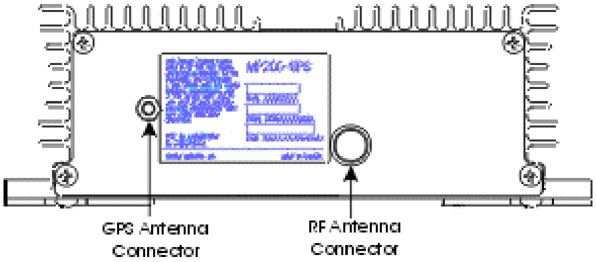
Face Plate



Back Plate



Back Plate with GPS Module



---

o Installation Guide (top)

- o Overview
- o **Equipment Req.**
- o Mounting
- o RF Antenna
- o Power Harness
- o Serial Cable
- o Handset
- o I/O Devices
- o GPS Installs

Equipment & Cable Requirements

The MP200 is shipped with the following items that are necessary for installation:

- A mounting template that is used to mark where holes must be drilled to mount the modem;
- Mounting screws and washers;
- A fused power harness (5 amp) with a power connector at one end, and three wires (red, white, and black) at the other;
- A CD, containing this and other documents, as well as the Watcher and WirelessExpert™ software;
- With the Voice models (MP205V and MP210V), a handset.

To complete the installation, you also require:

- A 9 pin serial cable (with a standard DB9 connector) that is long enough to run from the mounting location of the MP200 to the location of the computer that is to be used with it. (The maximum length is 25 feet.);
- An approved RF antenna with 50 ohm impedance and a male TNC connector. This may be a hardmount or magnetic mount antenna. Suitable models are mentioned in the section, "Connecting the RF

Antenna";

- A power supply (when installed in a vehicle, this is usually the car battery);
- For the GPS models, a GPS Antenna;
- For differential GPS, a differential GPS receiver, antenna, and I/O cable. See the section, "GPS Installations" for more details about GPS Equipment.
- If an I/O device (panic button, sensor, or gauge) is being implemented, the device and an I/O cable with the appropriate connector are required.

If desired, for the MP205 and MP210 models, a speaker can be connected to the **AUDIO** port on the modem, so that it is possible to hear the sounds made when the modem attempts to establish a CSC link. The specifications for the speaker are described in the section, "Connecting the Handset (or Speaker)".

---

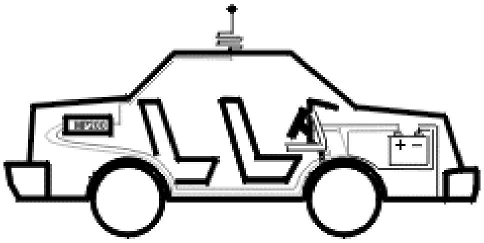
o Installation Guide (top)

- o Overview
- o Equipment Req.
- o **Mounting**
  - o Locations
  - o Instructions
- o RF Antenna
- o Power Harness
- o Serial Cable
- o Handset
- o I/O Devices
- o GPS Installs

Mounting the MP200

This section provides specific information about installing the MP200 in a vehicle. (See the Fixed Implementation Guide for information regarding non-mobile applications for applications such as telemetry.)

WARNING - The MP200 is designed for negative ground vehicles only. It will not function in a positive ground vechicle.



Mounting Locations

The MP200 is commonly mounted in car trunks, but it may be mounted under a front or rear seat, under the dashboard, or elsewhere. If the MP205V or MP210V is being used, note that the length of the handset cable may limit where the modem can be installed.

Choose a location within the vehicle which:

- Allows access to the connectors on the front and rear panels;
- Avoids excessive heat from sources such as the engine compartment, heaters, or vehicle exhaust;
- Protects it from weather and excessive moisture. The MP200 is NOT a sealed unit and should therefore be mounted out of the vicinity of leaks, spills, and splashes.

Mounting Instructions

1. Use the mounting template supplied to mark the location of the mounting holes.
2. Drill the required pilot holes (5/32").
3. Use the six mounting screws supplied to secure the MP200 through the holes along the base of the case.

CAUTION - It is recommended that the RF antenna be connected to the modem, before it is powered on.

---

o Installation Guide (top)

- o Overview
- o Equipment Req.
- o Mounting
- o **RF Antenna**
- o Power Harness
- o Serial Cable
- o Handset
- o I/O Devices
- o GPS Installs

Connecting the RF Antenna

The MP200 requires an FCC approved RF antenna with a male TNC connector and 50 ohms impedance. A suitable antenna is available from Sierra Wireless (part number 6000065). Suitable antennas are also manufactured by Radiall/Larsen Antenna Technologies (www.larsenet.com), Sinclair Technologies Inc. (www.sinctech.com), and Antenna Specialists (www.allentele.com/antenna/).

The steps involved in connecting the RF antenna are:

1. Determine a suitable location for the antenna. Note the following when selecting the location:
    - ❍ The antenna should be mounted at least 20 cm from occupants or bystanders.
    - ❍ The separation between the antenna for the MP200 and other mobile radio antennas should be as much as is practical. Antennas should never be mounted within one foot of each other.
    - ❍ It is best to mount the antenna for the MP200 on the roof, rather than the trunk, of a vehicle.
    - ❍ The antenna should have a ground plane of at least 15cm (6") of metal in all directions.

   Mount the antenna according to the instructions provided with it.
2. Thread the antenna cable through the vehicle so that the TNC connector is available to the MP200.
3. Connect the TNC connector to the MP200. Tighten firmly by hand. Do not use tools.

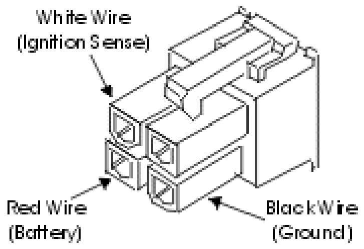
---

o Installation Guide (top)

- o Overview
- o Equipment Req.
- o Mounting
- o RF Antenna
- o **Power Harness**
  - o Ignition Options
  - o Wire Splicing
  - o Crimp Terminals
  - o LED Indicator
- o Serial Cable
- o Handset
- o I/O Devices
- o GPS Installs

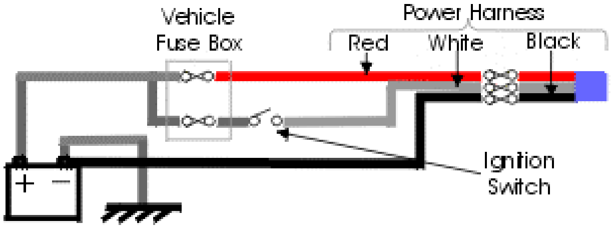
Connecting the Power Harness

The power harness connects to the modem with a Molex connector. The part number of the connector is 39-01-2040 (alternative part number 39-01-2045). The part number for the pins is 39-00-0039. The pinouts are as follows:



The modem's power on/off is controlled by the ignition sense line (white wire). When this line is pulled high (5 to 16 volts), the modem will power on. The modem shuts down (under software control) when the ignition sense line is pulled low (less than 2 volts) by de-registering and saving any relevant operational data. This avoids potential data loss due to a hard power off. Replacement power harnesses are available from Sierra Wireless (part number 6000047).

The red, black, and white wires connect to the battery and ignition sense as shown in this diagram:



Consult the vehicle manual for its electrical wiring scheme in order to determine the most suitable points for connection.

Ignition Sense Options

The white ignition sense wire of the power harness must be connected according to how the modem is to be powered on and off. There are three options.

1. The white ignition sense wire can be connected to the vehicle's ignition such that the modem is powered on only when the ignition key is switched to 'On'. The modem is then on, only when the engine is on.
2. The white ignition sense wire can be connected to the vehicle's ignition such that the modem is powered on when the ignition is switched to 'Accessories'. The modem can then be turned on, when the engine is off.
3. The white ignition sense wire can be connected to a separate switch, mounted under the dashboard, that allows the modem to be turned on or off, regardless of the position of the ignition key.

CAUTION - It is NOT advisable to connect the white ignition sense wire to the red battery wire. In this configuration, the modem's controlled shut down sequence is bypassed, and this may cause subsequent power-on problems. It may also cause the vehicle battery to be completely drained.

The modem also has a time delay option. Using an application called Toolkit, the modem can be set to remain on for a defined period of up to 4 hours, after the power has been removed from the ignition sense wire. See the Configuration Guide for details.

NOTE - If you are installing one of the models with GPS, be aware that it takes several minutes for the GPS receiver to start transmitting navigational data after a cold start. Cold starts are described in the GPS Primer (PDF). This should be taken into consideration when choosing an ignition sense option. You may want to avoid cold starts by installing the modem so that it is possible to leave the modem on when the vehicle is off for short periods.

Wire Splicing

The wires of the power harness may be spliced to the car wiring. Proper splicing is essential to reliable operation of the MP200. Note the following when connecting the power harness:

- The use of 'quick taps' is strongly discouraged as they reduce the integrity of the wire that is cut and let moisture into the cable.

- An appropriate method of splicing is to strip a small portion of the insulation, solder the wires together, then heat shrink the connection to re-insulate.

Crimp Terminals

If suitable terminal connection points are available on the vehicle for power and ignition sense connection then the use of automotive crimp terminals is encouraged:

- When using crimp terminals, do not leave bare wire exposed.
- Do not use crimp terminals for more than one wire unless it is designed for this.

LED Indicator

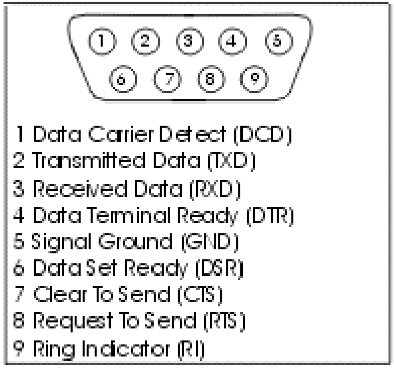
The LED light on the front of the MP200 indicates the following:

LED	Meaning
Off	Modem is powered off.
On Solid	Modem is powered on, and is scanning for a channel.
On Flashing	Modem has acquired a channel. (This does not mean that the modem was able to register, however.)

Connecting the Serial Cable

The serial cable is a standard cable readily available from many suppliers, including Sierra Wireless (part number 6000083 for a 16-foot cable, and part number 6000048 for a 10-foot cable). The MP200 is configured as DCE (Data Communications Equipment) and uses the standard RS232 pin designations.

Male DB9 Pin Designations



1 Data Carrier Detect (DCD)
2 Transmitted Data (TXD)
3 Received Data (RXD)
4 Data Terminal Ready (DTR)
5 Signal Ground (GND)
6 Data Set Ready (DSR)
7 Clear To Send (CTS)
8 Request To Send (RTS)
9 Ring Indicator (RI)

To install the serial cable:

1. Thread the serial cable through the vehicle such that the MALE DB9 end of the cable is available to the MP200 and the other end is available to the computer.
2. Connect the DB9 connector to the **DATA** port of the MP200 and tighten the screws. (Do not use power tools.)

---

o Installation Guide (top)

- o Overview
- o Equipment Req.
- o Mounting
- o RF Antenna
- o Power Harness
- o **Serial Cable**
- o Handset
- o I/O Devices
- o GPS Installs

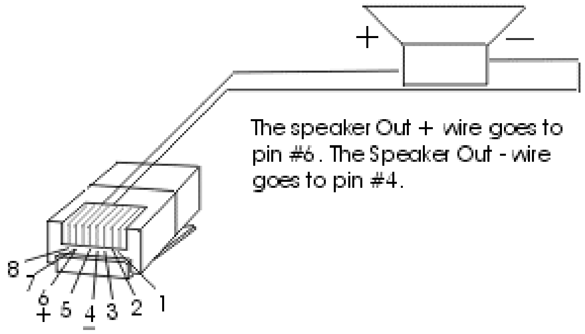
o Installation Guide (top)

- o Overview
- o Equipment Req.
- o Mounting
- o RF Antenna
- o Power Harness
- o Serial Cable
- o **Handset**
- o I/O Devices
- o GPS Installs

Connecting the Handset (or Speaker)

A handset is included with the MP205V and MP210V. The handset attaches to the **AUDIO** jack on the modem.

If you want to use a speaker with the MP200, use a minature audio transducer (eg. the Panasonic EAF-14R06). Attach the speaker to the 8 position **AUDIO** jack on the MP200, connecting the Speaker + and Speaker **-** terminals, as shown below:



The speaker Out + wire goes to pin #6. The Speaker Out - wire goes to pin #4.

---

o Installation Guide (top)

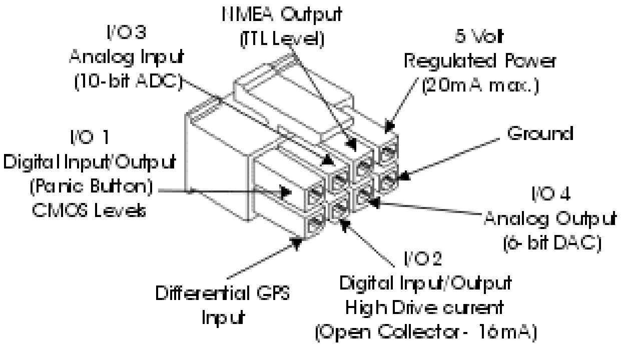
- o Overview
- o Equipment Req.
- o Mounting
- o RF Antenna
- o Power Harness
- o Serial Cable
- o Handset or Speaker
- o **I/O Devices**
- o GPS Installs

Optional I/O Devices

The I/O port on the MP200 is designed to allow for a variety of uses, including:

- connecting a differential GPS receiver;
- connecting a panic button;
- connecting an off/off sensor; or,
- connecting an analog gauge.

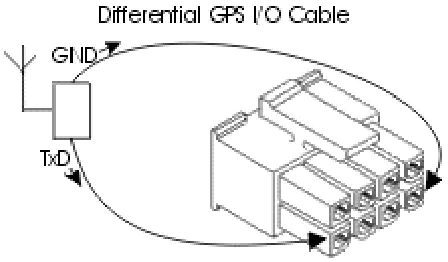
If the modem is to be used for any of these purposes, an I/O cable must be constructed, that attaches to the MP200 with an 8-pin Molex connector. The part number for the connector is 43025-08000. The part number for the female terminals is 43030-0007. Use wire of a gauge of 20 to 24 AWG. The pin designations are as follows:



For more complete details, consult the Integration Guide section on the I/O Port.

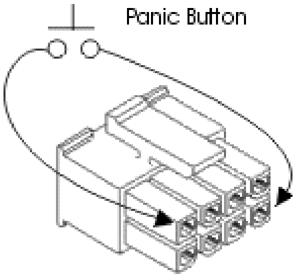
Differential GPS

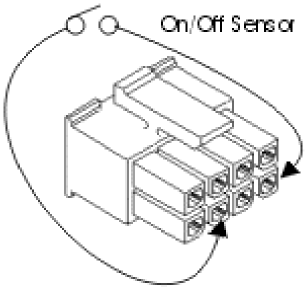
An I/O cable for a differential GPS receiver requires one wire to the 'Differential GPS' pin and one wire to the 'Ground' pin.



Panic Buttons & On/Off Sensors

An I/O cable for a panic button requires one wire to the 'I/O 1' pin and one wire to the 'Ground' pin. An I/O cable for an on/off sensor requires one wire to the 'I/O 2' pin and one wire to the 'Ground' pin.





- Installation Guide (top)
  - Overview
  - Equipment Req.
  - Mounting
  - RF Antenna
  - Power Harness
  - Serial Cable
  - Handset
  - I/O Devices
  - **GPS Installs**
    - Differential GPS

GPS Installations

The GPS antenna must have an SMB connector. Sierra Wireless supplies two types of suitable GPS antennas — a magnetic mount antenna (part number 6000022); and, a hard mount antenna, in black (part number 6000091), or white (part number 6000095). Install the GPS antenna as follows:

1. Determine a suitable location for the antenna. Mount the antenna according to the instructions provided with it.
2. Thread the antenna cable through the vehicle so that the SMB connector is available to the MP200.
3. Connect the SMB connector to the MP200. Tighten firmly by hand. Do not use tools.

For more complete details, consult the Integration Guide section on the GPS Option.

Differential GPS

To implement differential GPS, it is necessary to subscribe to a service that provides a differential GPS signal. You also need to obtain a differential GPS receiver and antenna that meet the specifications of your service. The Integration Guide provides more detailed information about implementing differential GPS with the MP200.

The hardware installation steps are:

1. Mount the GPS differential receiver according to the instructions provided with it.
2. Install and connect the differential receiver antenna, according to the

instructions provided with it.

3. Connect the differential receiver to the MP200 with the I/O cable (described above).

For more complete details, consult the Integration Guide section on the GPS Option.

Use the document map to jump to a subject of interest or turn the pages to read the full manual.

Previous Page Page Top Next Page

Document Map

Back to Product List

SIERRA WIRELESS

MP200

Fixed Installation Guide

- Product Manual
- **Fixed Installation Guide**
  - Location Selection
  - Antenna
  - Power Cable
  - I/O Cable
  - Computer Cable
  - Speaker

February 2000

Overview

Installing the MP200 involves:

- Selecting a location for the modem;
- Mounting an RF antenna, connecting the antenna cable and ensuring that the antenna is properly grounded;
- Constructing a power cable, or, adapting the power harness that comes with the MP200, and connecting a 12 V power supply;
- If the MP200 is to be connected to a sensor or gauge, an I/O cable must be constructed to connect the device to the modem;
- Depending on the implementation, you may need to install a serial cable to connect the MP200 to a computer or RTU (remote terminal unit).

For the MP205 and MP210, you may choose to connect a speaker to the **AUDIO** port. This allows you to hear the sounds made when the modem attempts to establish a CSC link.

- Fixed Installation Guide (top)
  - **Location Selection**
  - Antenna
  - Power Cable
  - I/O Cable
  - Computer Cable
  - Speaker

Selecting a Location for the MP200

Choose a location which:

- Allows access to the connectors on the front and rear panels;
- Meets temperature and humidity specifications for the modem;
- Protects the modem from liquids. (The MP200 is **not** a sealed unit.)
- If outdoors, it should be within a protective enclosure.

If you choose to mount the MP200, use the mounting template supplied to mark the location of the mounting holes. Drill the holes (5/32") and use the screws supplied to secure the MP200 through the holes along the base of the case.

- Fixed Installation Guide (top)
  - Location Selection
  - **Antenna**
    - Grounding
  - Power Cable
  - I/O Cable
  - Computer Cable
  - Speaker

Connecting the Antenna

The MP200 uses a standard RF antenna with a male TNC connector and 50 ohms impedance. Normally a 3dB gain antenna is used, but unity gain or directional antennas may be used if the application requires it. FCC guidelines for the antenna are listed in the Product Manual. A suitable antenna is available from Sierra Wireless (part number 6000065). Suitable antennas are also manufactured by Radiall/Larsen Antenna Technologies (www.larsenet.com), Sinclair Technologies Inc. (www.sinctech.com), and Antenna Specialists (www.allentele.com/antenna/).

Mount the antenna as far as possible from obstructions that could impede signal reception and such that people do not come within 20 cm of it. Avoid, whenever possible, long cable runs which could negatively impact received signal strength. If a long cable run is required, use a heavier gauge cable to minimize the loss.

Follow the mounting instructions that come with the antenna, and thread the antenna cable to the MP200, attaching the TNC connector to the back of the modem. If mounting the antenna out of doors, read the following important note regarding grounding.

Grounding

Proper grounding of the MP200 and antenna system is critical, particularly when installed in a fixed outdoor location where it may be subject to the effects of lightning strikes. No amount of grounding will protect the system from a direct lightning strike, but the grounding should be designed to deal with the static buildup and surges that can result from nearby strikes. The following guidelines are provided, although professional installation of the antenna is recommended. You should also refer to your local and national electrical codes (the Canadian Electrical Code in Canada, or the National Electrical Code in the United States).

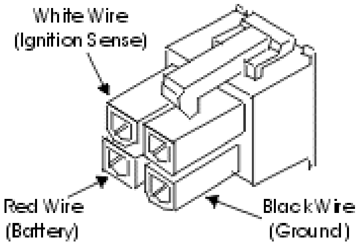
The antenna, the modem's power supply, and the modem itself should be grounded. The antenna cable should be grounded via an antenna discharge unit at the point where the cable enters the facility or enclosure. Be sure to mount the antenna and lead-in wires away from overhead power lines or other electrical circuits. Choose an antenna discharge unit that is appropriate to the MP200, which operates in the 824 through 894 MHz band at power levels below 4 watts. If an antenna mast is to be used, it should also be grounded.

Note that all grounds require a considerable length of exposed metal surface to be in contact with earth below the permanent moisture level. Attaching grounds to metal posts encased in concrete does not allow them sufficient (or, in many cases, any) contact with earth below permanent moisture level, and does not provide an adequate ground. Your national electrical code stipulates minimum gauges for ground wires.

- Fixed Installation Guide (top)
  - Location Selection
  - Antenna
  - **Power Cable**
    - Ignition
  - I/O Cable
  - Computer Cable
  - Speaker

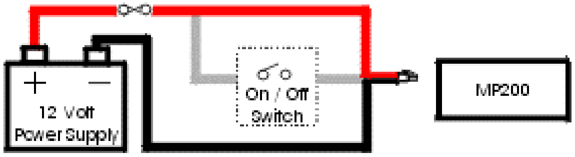
Connecting the Power

Use a 12 volt DC power supply with the MP200. The power cable connects to the modem with a Molex connector. The part number of the connector for the cable is 39-01-2040 (alternative part number 39-01-2045). The part number for the pins for the cable connector is 39-00-0039. The pin outs are as follows (The wire colours refer to the power harness that comes with the MP200.):



The modem's power on/off is controlled by the ignition sense line (white wire). When this line is pulled high (5 to 16 volts), the modem will power on. The modem shuts down (under software control) when the ignition sense line is pulled low (less than 2 volts) by de-registering and saving any relevant operational data. This avoids potential data loss due to a hard power off. Replacement power harnesses are available from Sierra Wireless (part number 6000047).

The red, black, and white wires connect to the battery and ignition sense as shown in this diagram:



Ignition Sense

Since the MP200 has no on/off switch, the white ignition sense wire of the power harness must be connected according to how the modem is to be powered on and off. The recommendation is that the ignition sense wire be connected to a switch, rather than connecting it directly to the red battery wire. It is also recommended that the battery wire have a 5 amp fuse.

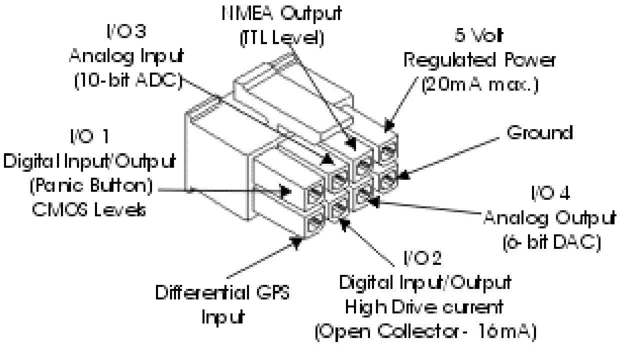
o Fixed Installation Guide (top)
  o Location Selection
  o Antenna
  o Power Cable
  o **I/O Cable**
  o Computer Cable
  o Speaker

Connecting I/O Devices

The I/O port on the MP200 is designed to allow for a variety of uses, including:

- connecting an off/off sensor; or,
- connecting an analog gauge.

If the modem is to be used for any of these purposes, an I/O cable must be constructed using an 9 pin Molex connector with these pin designations.

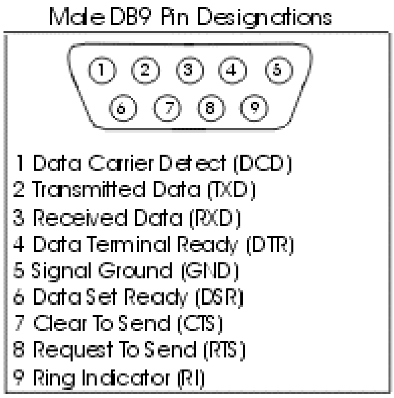


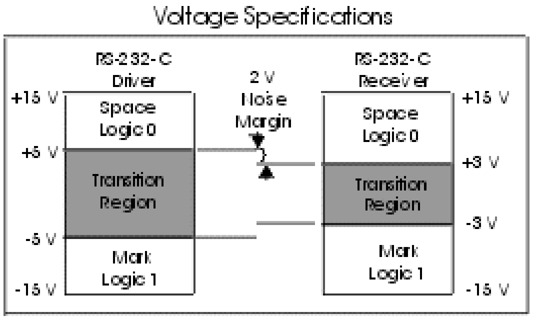
See the Integration Guide for more details.

o Fixed Installation Guide (top)
o Location Selection
o Antenna
o Power Cable
o I/O Cable
o **Computer Cable**
o Speaker

Connecting the MP200 to a Computer

The MP200 provides a female DB9 connector to permit connection to a host computer or remote terminal unit (RTU) with a standard 9 pin serial cable. This cable is readily available from many suppliers, including Sierra Wireless (part number 6000083 for a 16-foot cable, and part number 6000048 for a 10-foot cable). The maximum length of a standard RS232 cable is 25 feet. If longer cable runs are required a special low loss cable can be used. The MP200 is configured as DCE (Data Communications Equipment) and uses the standard RS232 pin designations and these voltage specifications:

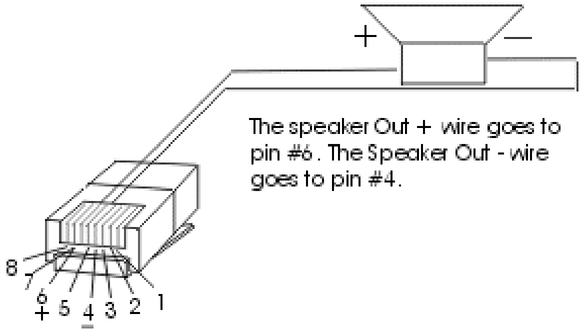




To install the serial cable, connect the male DB9 end of the cable to the MP200 and tighten the screws. (Avoid over-tightening.) The other end of the cable connects to the communications port of the computer.

Connecting a Speaker to the MP200

If you want to use a speaker with the MP200, use a minature audio transducer (eg. the Panasonic EAF-14R06). Attach the speaker to the 8 position 'Audio' jack on the MP200, connecting the Speaker + and Speaker - terminals, as shown below:



The speaker Out + wire goes to pin #6. The Speaker Out - wire goes to pin #4.

Use the document map to jump to a subject of interest or turn the pages to read the full manual.

Previous Page Page Top Next Page

o Fixed Installation Guide (top)
  o Location Selection
  o Antenna
  o Power Cable
  o I/O Cable
  o Computer Cable
  o **Speaker**

Document Map

Back to Product List

o **Product Manual**
o **Installation Guide**

o **Configuration Guide**

  o **Overview**
    o CSC
    o CDPD
    o MP200 Models
    o Accounts
    o Roaming
    o Software
  o System Req.
  o Information Req.
  o Software Inst.
  o WirelessExpert
  o CSC Watcher
  o CDPD Watcher
  o Toolkit

o **Integration Guide**
o **Troubleshooting**
o **Service**
o **Contact Us**

2110247 Rev 1.0
March 2000

Welcome to the MP200 Series Configuration Guide

This Guide covers the software installation, modem configuration, and operation of the MP200 Series of radio modems.

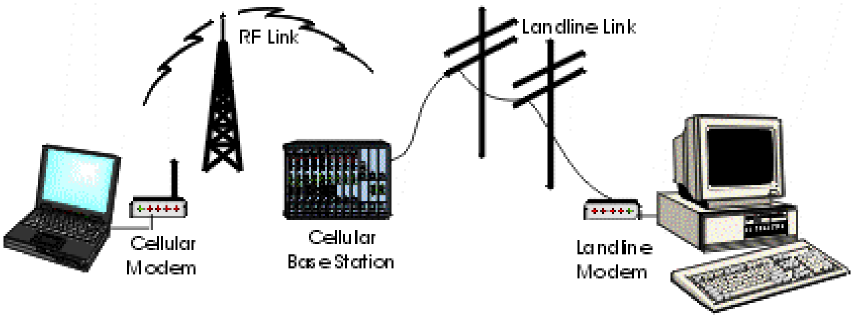
For instructions on the physical installation of the MP200 modems, see the Hardware Installation Guide. For information about designing software or devices to interface with the MP200 modems, and information about implementing Global Positioning Systems (GPS) see the Integration Guide.

Overview

The MP200 series of modems include models that allow for operation on two cellular systems: circuit switched cellular (CSC), and cellular digital packet data (CDPD).

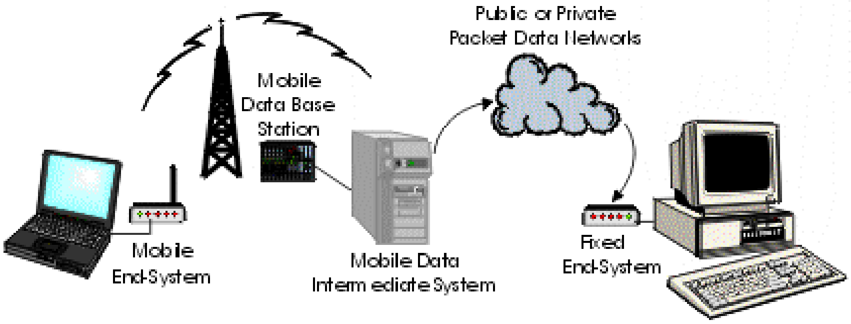
Circuit Switched Cellular (CSC) Communication
The defining characteristic of circuit switched cellular is that it provides a temporary dedicated line or circuit between the devices that are in communication. Cellular phone voice communication is circuit switched. While a call is in progress, the callers have a dedicated line (that is, one that is NOT shared). When the callers hang up, the circuit then becomes available to others.

The charge for circuit switched service is usually based on call duration and the distance between calling parties. Circuit switched cellular is used for both voice, and data, communication. It is appropriate for certain kinds of data transfers that require network connection for long periods (i.e. when extended file transfers are required).



Cellular Digital Packet Data (CDPD) Communication
The CDPD system overlays the circuit switched network and is used only for data communication. In CDPD there is no dedicated line. Messages are broken into packets and sent along idle channels using the quickest available route. This results in increased efficiency and reduced costs. Charges for CDPD service are usually based on the number of packets sent, rather than the length of time in communication. For applications that involve the

frequent transmission of short messages, CDPD is a much cheaper service than circuit switched.



The MP200 Series Models
The MP200 series of modems has three models.

- The MP200 model supports only CDPD mode.
- The MP205 supports only circuit switched mode.
- The MP210 allows you to switch modes between CDPD and circuit switched.

Cellular Accounts
To use the MP200 modems, you must obtain an account with a cellular service provider. For the MP200 model, this must be a CDPD account. For the MP205, this account must be circuit switched. For the MP210, to take advantage of both modes, you will need both a CDPD and a circuit switched account.

When you set up your account, the service provider requires certain information about your modem. You also require certain information from the service provider in order to configure your modem. This is detailed in the section called, "Information Requirements".

Roaming

There are generally two Service Providers operating cellular networks in each geographical area that has cellular service. When you obtain an account from one of these Service Providers, you are able to use that account within the geographical area served by their network. Furthermore, you are usually able to use your account outside that geographical area because the Service Providers have agreements to facilitate the seamless transfer of cellular devices from one network to another. When you travel outside the area served by the cellular network of your Service Provider, you are actually using the network of a different Service Provider, but this is all handled by the cellular network so that you do not need to be aware of the switch.

When using your modem outside the geographical area of your own Service Provider, you are in "roaming" mode. Roaming rates are usually more expensive than the rate charged when you are inside the area served by the network of your own Service Provider. For this reason, cellular modem users who travel frequently between areas served by different Service Providers, sometimes choose to have more than one account. If you use your modem throughout a very wide geographical area, it may be to your advantage to have several accounts. The MP200 allows you to configure up to four CDPD accounts and two circuit switched cellular accounts, using an application called Toolkit.

Software

Before you can use the MP200 modems, you must install the hardware, install the software, and configure the modem according to the specifics of your service provider, your account, and your modem. The MP200 modems come with four software applications that are on the same CD as this documentation.

WirelessExpert

This application allows you to attach your account information to your modem — the final step necessary to making the MP200 operational.

CDPD Watcher

This application displays your current radio channel and signal strength when in CDPD mode. You can also use it to log network messages. Since it is specific to CDPD operation, it is useful on the MP200 and MP210 models only.

CSC Watcher

This application displays your current radio channel and signal strength when in circuit switched mode. Since it is specific to circuit switched operation, it is useful on the MP205 and MP210 models only.

Toolkit

Advanced configuration options, beyond those available in WirelessExpert, are provided in Toolkit. This application is particularly useful to users with more than one CDPD or circuit switched account.

---

o Configuration Guide (top)
  o Overview
  o System Req.
  o Information Req.
  o Software Inst.
  o WirelessExpert
  o CSC Watcher
  o CDPD Watcher
  o Toolkit

System Requirements

The MP200 Series modem requires these system resources:

Disk Drive	CD-ROM
Port	1 Com Port
Memory	16 MB
Disk Space	1 Mb*

* This assumes that all necessary Windows components are already installed.

The software runs on these operating systems:

- Windows 95 OSR2;
- Windows 98;
- Windows NT 4.0 Service Pack 5; or,
- Windows 2000.

If you are using Windows 95 or NT, and are not certain that the necessary upgrades have been installed, click the corresponding link for instructions on identifying the version of your operating system.

o Configuration Guide (top)

- o Overview
- o System Req.
- **o Information Req.**
  - o By SP
  - o From SP
- o Software Inst.
- o WirelessExpert
- o CSC Watcher
- o CDPD Watcher
- o Toolkit

Information Requirements

Required *by* the Service Provider
When you request an account from a service provider, you will be asked for the equipment identifier (EID), or the electronic serial number (ESN) for the modem. The EID is used for CDPD accounts and the ESN for circuit switched accounts.

The EID is a series of letters and numbers in the format 00-A0-D5-xx-xx-xx, that uniquely identifies each device on a CDPD service. The ESN is a number in the format 206-xxxxxxxx that uniquely identifies each device on the circuit switched service. These numbers are printed in two places: on a white label on the box; and, on a white label stuck to the back plate of the modem.

Required *from* the Service Provider
To configure your MP200 for use on a cellular network, you require information that is specific to your service provider and your account. Ensure that you obtain, and make note of, this information when you set up an account. The table below lists the information requirements. If you are not familiar with the terms, click the links for CDPD or circuit switched cellular to display a more detailed description.

Service Type	Information
CDPD (MP200 and MP210)	You require: ● the **NEI** for your account; ● the **DNS** and **Side Preference** for your Service Provider; ● optionally, the **SPNI** for your Service Provider.
Circuit Switched Cellular (MP205 and MP210)	You require: ● the **NAM** for your account; ● the **Side Preference** and **Home System ID** for your Service Provider.

---

o Configuration Guide (top)

- o Overview
- o System Req.
- o Information Req.
- **o Software Inst.**
- o WirelessExpert
- o CSC Watcher
- o CDPD Watcher
- o Toolkit

Software Installation

There are four applications (described above) designed for use with the MP200. (Note this does not include the software that comes with the GPS models.) Procedures for installing the applications vary between operating systems. Click on your operating system for instructions specific to your version of windows:

- Windows 95/98
- Windows NT
- Windows 2000

- Configuration Guide (top)
  - Overview
  - System Req.
  - Information Req.
  - Software Inst.
  - **WirelessExpert**
    - When To Run
    - Configuring With
  - CSC Watcher
  - CDPD Watcher
  - Toolkit

Configuring the MP200 with WirelessExpert

WirelessExpert is the application you use to configure the MP200 for use on both circuit switched cellular and CDPD networks.

When To Run WirelessExpert:

You must run WirelessExpert, before you use an MP for the first time. You should also run WirelessExpert when:

- You replace your MP with a different Sierra Wireless modem. (This applies when you switch to a different product or model. It also applies even if you replace your MP with a modem of the same model that has been configured on a different computer.)
- Your account parameters (NAM, Home System ID, NEI, DNS, or side preference) change. (Note that Toolkit can also be used for this purpose.)

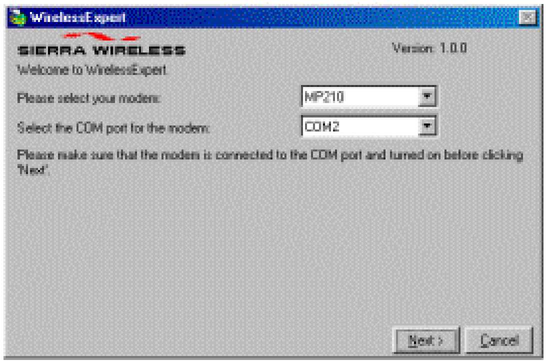
CAUTION - Windows NT and **Windows 2000** users must be logged on as the administrator when using WirelessExpert. If you attempt to make changes with Toolkit or WirelessExpert while logged on as a user other than the administrator you will lose the use of the MP200 until you re-start Windows.

NOTE - In **Windows 95/98** the modem profiles for the MP are installed the first time you run WirelessExpert. This requires that the computer be restarted. For this reason, you are advised to exit all other Windows programs before starting WirelessExpert for the first time.

To Configure Your Modem:

If you have not yet set up an account with a Service Provider, the information you require to do so is displayed in WirelessExpert. It also prompts you for the data detailed in the Information Requirements section of this document. Follow the steps below to configure your modem:

1. If WirelessExpert is not open, launch it by selecting `Start > Programs > Watcher > WirelessExpert`.
2. The first WirelessExpert screen is then displayed:



Version: 1.0.0

Welcome to WirelessExpert

Please select your modem: MP210

Select the COM port for the modem: COM2

Please make sure that the modem is connected to the COM port and turned on before clicking 'Next'.

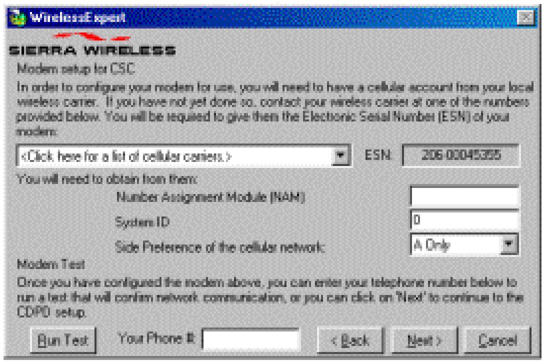
This screen is used to select the model of MP200 you are using, and the communications port to which it is attached. If WirelessExpert has been run on this computer before, the previously selected model is displayed. If the correct model is not already displayed, select it from the list.

'Auto detect' is initially selected in the communications port field. If you know which communications port is in use by the MP200, select it from the list. Otherwise, the 'Auto detect' feature will attempt to locate the correct port. (Selecting the correct communications port from the list is usually faster than using the Auto detect feature.)

When complete, click **`Next >`**.

3. If the attached MP200 supports PPP, WirelessExpert then displays a screen giving you the option of using PPP instead of SLIP. Note that the recommended protocol for the MP200 is SLIP. You should select PPP on this screen only if your network environment requires that you use it. Click `PPP` or `Continue`.

   If you select PPP and are using Windows 95 or 98, you will then be prompted as to whether you want Dial-Up Networking to log on to your network. If you enable this, when you connect to your network, you will be automatically logged-on. Otherwise, a log-on screen appears. Click `Yes` to set Dial-Up Networking to log-on for you, or `No` if you do **not** want this enabled.
4. For **MP210** models, the next screen provides you with three setup options. You can configure the modem for circuit switched cellular, CDPD, or both. Select an option and click **`Next >`**.
5. Depending on your model of modem, and your previous selection, WirelessExpert displays either the circuit switched setup, or the CDPD setup screen. If you are only configuring the modem for CDPD use, skip to the CDPD setup screen.
6. **Circuit Switched Cellular Setup**



Modem setup for CSC

In order to configure your modem for use, you will need to have a cellular account from your local wireless carrier. If you have not yet done so, contact your wireless carrier at one of the numbers provided below. You will be required to give them the Electronic Serial Number (ESN) of your modem:

<Click here for a list of cellular carriers.> ESN: 206 00045355

You will need to obtain from them:

Number Assignment Module (NAM):

System ID: 0

Side Preference of the cellular network: A Only

Modem Test

Once you have configured the modem above, you can enter your telephone number below to run a test that will confirm network communication, or you can click on 'Next' to continue to the CDPD setup.

Your Phone #:

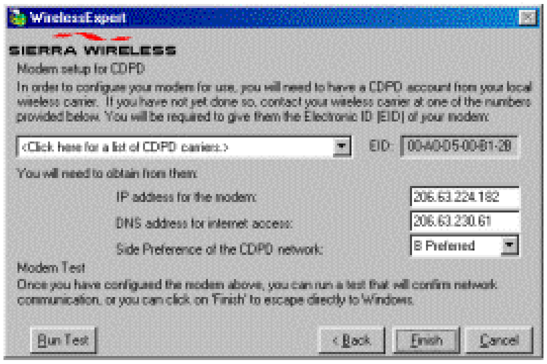
- WirelessExpert provides a list of CSC service providers and their phone numbers, as well as the ESN of your modem. (The ESN displayed should match the ESN on the box and on the back plate of the MP.) This information is provided to assist you in obtaining a circuit switched cellular account if you have not yet done so. No entry is required for the cellular carrier, and the ESN cannot be changed.
- Your carrier should provide you with the NAM for your account, and their System ID and side preference. Note that there are four options for side preference: 'A only', 'B only', 'A preferred', and 'B preferred'. If you select 'A only' or 'B only', the MP200 will never scan channels for the other side designation. If you select 'A preferred' or 'B preferred', the modem will scan channels on the preferred side first, and will scan the other side channels if it

is unable to register on the preferred side. It is important that you use the 'preferred' option, if you intend to use the MP while roaming outside the normal service area of your Service Provider. The carrier you use outside the area served by your own Service Provider may have the opposite side designation.

- Enter the **NAM**, **System ID**, and **Side Preference**.
- You can test whether the MP is operational with this configuration, by entering a phone number to dial next to **Your Phone #**, and clicking **Run Test**. WirelessExpert then attempts to put the modem in circuit switched mode, acquire cellular service and dial the number. A screen is displayed showing each step of the test and whether the test is successful. Initially, there is a dot next to each step, indicating that WirelessExpert has not yet performed the step. An arrow indicates that the application is in the process of performing the step. A green check mark indicates that the modem was successful in performing that step. A red 'X' indicates that the modem was unable to perform the step. If a test fails, a help screen is displayed that provides some suggestions on solving the problem. (See the Troubleshooting section for more details.)
- When complete, if the modem is being configured for circuit switched cellular only, click **Finish**. If you have made changes to existing entries, you will be prompted to save your changes, and you can select `Yes` to save the changes, or `No` to revert to the previous entries. An Explorer session is launched showing you WirelessExpert, CSC Watcher, CDPD Watcher, and Toolkit. The MP is now ready to make a circuit switched connection. If you would like to monitor service coverage, launch CSC Watcher.

  If the modem is also being configured for CDPD, click **Next >** to continue.

7. **CDPD Setup**



WirelessExpert

SIERRA WIRELESS

Modem setup for CDPD

In order to configure your modem for use, you will need to have a CDPD account from your local wireless carrier. If you have not yet done so, contact your wireless carrier at one of the numbers provided below. You will be required to give them the Electronic ID (EID) of your modem:

<Click here for a list of CDPD carriers.>

EID: 00-A0-D5-00-B1-28

You will need to obtain from them:

IP address for the modem: 206.63.224.182

DNS address for internet access: 206.63.230.61

Side Preference of the CDPD network: B Preferred

Modem Test

Once you have configured the modem above, you can run a test that will confirm network communication, or you can click on 'Finish' to escape directly to Windows.

- WirelessExpert provides a list of CDPD service providers and their phone numbers, as well as the EID of your modem. The EID should match the EID printed on the label on the back plate of the modem, and it should be the EID that your Service Provider used to set up your account. No entry is required for the cellular carrier, and the EID cannot be changed.
- This screen is also where you enter the NEI (IP address for the modem) and the DNS (Domain Name Server) and side preference for your Service Provider. If WirelessExpert has been

run before, previously entered data appears in these fields, and you can overwrite it.

- The DNS is required only if the MP200 is to be used for web browsing.
- Note that there are four options for side preference: 'A only', 'B only', 'A preferred', and 'B preferred'. If you select 'A only' or 'B only', the MP200 will never scan channels for the other side designation. If you select 'A preferred' or 'B preferred', the modem will scan channels on the preferred side first, and will scan the other side channels if it is unable to register on the preferred side. It is important that you use the 'preferred' option, if you intend to use the MP200 while roaming outside the normal service area of your Service Provider since the carrier you use while roaming, may have the opposite side designation.
- Enter the **IP address**, **side preference**, and (if applicable) the **DNS** .
- You can test whether the MP200 is operational with this configuration, by clicking **`Run Test`**.

  WirelessExpert then attempts to launch a Dial-Up Networking session, find a channel, register on the network, and ping the DNS address entered. (A ping is a test that involves sending a message to a remote station which echoes the message. If the returned message is the same as the original message, it is an indication of a good connection.) The screen shows you whether the modem was successful in each of these steps. Initially, there is a dot next to each step, indicating that WirelessExpert has not yet performed the step. An arrow indicates that the application is in the process of performing the step. A green check mark indicates that the modem was successful in performing that step. A red 'X' indicates that the modem was unable to perform the step. (See the Troubleshooting section if any of the tests fail.)
- When the screen is complete, click **`Finish >`** to continue. If you have made changes to existing entries, you will be prompted to save your changes, and you can select `Yes` to save the changes, or `No` to revert to the previous entries. An Explorer session is launched showing you WirelessExpert, CSC Watcher, CDPD Watcher, and Toolkit. The MP200 is now ready to make a CDPD connection. If you would like to monitor a connection, launch CDPD Watcher.

---

o Configuration Guide (top)

Monitoring Service Coverage with CSC Watcher

CSC Watcher is an application that allows you to check whether you have cellular service coverage. This application is designed for users of the MP205 and MP210 modems only. (CDPD Watcher allows you to monitor your connection while in CDPD mode.)

NOTE - You can **not** have a dial-up connection and run CSC Watcher simultaneously.

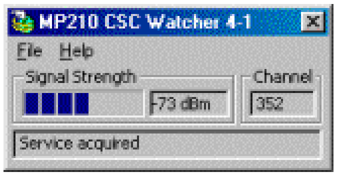
CSC Watcher is primarily a diagnostic tool. If an application you are using with the MP205 or MP210 doesn't appear to be working, you can use CSC

- o Overview
- o System Req.
- o Information Req.
- o Software Inst.
- o WirelessExpert
- **o CSC Watcher**
  - o Monitor Service
  - o Signal Strength
  - o Channel
  - o Exiting
  - o Exit to CDPD
- o CDPD Watcher
- o Toolkit

Watcher to determine if the network connection is the cause of the problem. Remember to close CSC Watcher before launching any other application that uses the MP205/MP210.

Monitoring your Service:

If CSC Watcher is not open, launch it by double clicking the icon, or by selecting **`Start > Programs > Sierra Wireless Watcher > CS Watcher`**. The following screen appears:



-73 dBm

352

Service acquired

Signal Strength

The signal strength is displayed in two ways; as a thermometer bar, and in dBm (decibels relative to 1 milliwatt). Note that the closer the dBm value is to 0, the stronger the signal. Values better than -70 are excellent. Values between -80 to -95 are typical, and -100 is poor.

Channel

The number to the right of the signal strength is the radio channel. When CSC Watcher is launched, you may see the channel number change rapidly, as the MP searches for a channel.

Exiting CSC Watcher

You can exit from CSC Watcher by selecting **`File > Exit >`** or clicking the close box. When you exit in this way, the modem remains in circuit switched mode.

Exiting to CDPD

The MP210 modems have the ability to switch from circuit switched to CDPD mode. If you are using the MP210 with Windows 95, 98 or 2000, the operating systems' modem profiles switch between modes automatically, as required by your application(s). However, this is not the case with Windows NT. If you are using Windows NT, and you want to switch from circuit switched to CDPD mode, a command must be issued to the modem. You can do this by selecting **`File > Exit to CDPD >`** or by issuing an AT Command as described in the AT Command Reference (PDF).

---

o Configuration Guide (top)

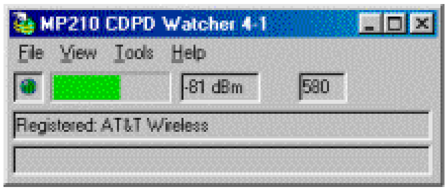
Monitoring a CDPD Connection with CDPD Watcher

CDPD Watcher is the application that allows you to monitor and control your connection while in CDPD mode. This application is designed for users of the MP200 and MP210 modems only. (CSC Watcher allows you to monitor your service while in CSC mode. Unlike CSC Watcher, you can run CDPD Watcher concurrent with another application that is using the modem.)

Monitoring Your CDPD Connection

- Overview
- System Req.
- Information Req.
- Software Inst.
- WirelessExpert
- CSC Watcher
- **CDPD Watcher**
  - Monitor Connection
  - Registration Status
  - Signal Strength
  - Channel
  - In Background
  - Menu Options
  - Message Log
- Toolkit

If CDPD Watcher is not open, launch it by double clicking the icon, or by selecting **`Start > Programs > Sierra Wireless Watcher > CDPD Watcher`**.



Registered: AT&T Wireless

Registration Status

Before you can transmit data on the CDPD network, your device must be registered on the network. The MP200 begins attempts to register as soon as it is active. The "LED" below the File menu, indicates registration/transmission status. When bright green, this indicates that the MP200 is registered on the CDPD network and data transmission is occurring. When the "LED" is red, the MP200 is *not* registered. During the registration process, the "LED" flashes bright red.

You can use this indicator to change your registration status. If the MP200 is registered, and you click on the "LED", you will be de-registered, and remain de-registered, until you choose to register again. If you click on the "LED" while de-registered, the MP200 attempts to re-register.

Signal Strength

The signal strength is displayed to the right of the "LED" that indicates your registration status. It is displayed in two ways; as a thermometer bar, and in dBm (decibels relative to 1 milliwatt). Note that the closer the dBm value is to 0, the stronger the signal. Values better than -70 are excellent. Values between -80 to -95 are typical, and -100 is poor. (The colour of the thermometer bar may change as the signal strength changes.)

Channel

The number to the right of the signal strength is the radio channel. When Watcher is launched, you may see the channel number change rapidly, as the MP200 searches for a channel on which to register. Once registered, the channel number is more stable, but changes as required by the CDPD network.

A lock icon next to the channel number, indicates that the channel has been locked. (There is a menu option that allows you to do this.)

Caution - Turning the channel lock on prevents the MP200 from scanning. The channel lock feature is designed for testing only, and should not be used in normal day to day operation of the MP200. Locking the channel may cause you to lose signal, and may cause disruption on the network.

Running Watcher in the Background

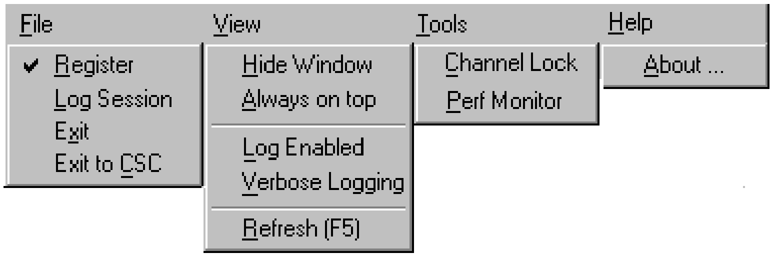
You may select **`View > Hide Window`** to remove the Watcher window but leave the program running in the background. A small icon in the system tray (on the bottom right of your screen) shows the state of the network connection:

Unregistered Scanning Registered Transmitting

Double-clicking the icon in the system tray re-opens the Watcher window.

Watcher Menu Options

Click an option for operational details:



Message Log

You can enable logging (if it is not already on) of the CDPD messages in Watcher by selecting **`View > Log Enabled`**. Click this link, for a description of the Log Messages.

Using Toolkit

Toolkit is an application that provides advanced configuration features beyond those offered in WirelessExpert. It is most useful to users who have more than one account. It allows you to set up as many as four CDPD accounts (MP200 and MP210 models) and two circuit switched accounts (MP205 and MP210), and easily switch between them. It also allows you to configure the MP200/MP210's delayed power off feature and sleep mode.

This section presumes an understanding of the terms Side Preference and SPNI, that are explained in the Information Requirements section. In addition, if you are using the MP200 or MP210, you require an understanding of these terms that are specific to CDPD accounts; EID, NEI, and DNS. If you are using the MP205 or MP210, you require an understanding of terms specific to CSC accounts; ESN, NAM, and System ID.

Toolkit Versus WirelessExpert:

The first time you use an MP200, you should always configure it with WirelessExpert. If you then want to set up multiple accounts for that modem, use Toolkit to set up the accounts and switch between them.

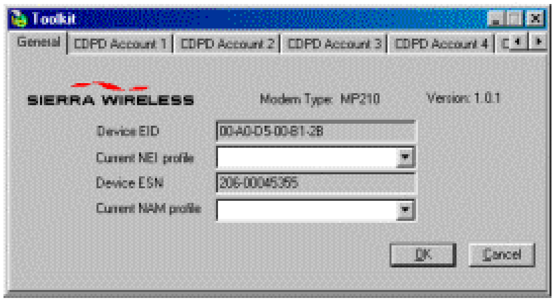
NOTE - Anytime you use a different modem with your computer, or use a different computer with your modem, you should run WirelessExpert. Once the initial configuration is done in WirelessExpert, you can use Toolkit to configure, and switch between, accounts.

- Configuration Guide (top)
  - Overview
  - System Req.
  - Information Req.
  - Software Inst.
  - WirelessExpert
  - CSC Watcher
  - CDPD Watcher
  - **Toolkit**
    - Vs. WirelessExpert
    - Starting Toolkit
    - CDPD Account Profile
    - CSC Account Profile
    - Power Management
    - SPNI Numbers
    - Delayed Power Off
    - CDPD Sleep

CAUTION - Windows NT users must be logged on as the administrator. If you attempt to make changes with Toolkit or WirelessExpert while logged on as a user other than the administrator you will lose the use of the MP200 until you re-start Windows.

Starting Toolkit :

To start Toolkit, double click the Toolkit icon, or select **Start > Programs > Sierra Wireless Watcher > Toolkit**.



Modem Type: MP210

Version: 1.0.1

Device EID: 00-A0-D5-00-81-28

Current NEI profile:

Device ESN: 206-00045355

Current NAM profile:

The screen that is displayed when you launch Watcher varies according to the model of modem you are using. For the MP200 model, the screen displays your current EID and NEI. For the MP205, the ESN and NAM are displayed. The screen for the MP210, shown above, lists the current EID, NEI, ESN, and NAM.

There is one tab for each of the allowed accounts. In the **Current NEI profile** (MP200 and MP210), you specify which CDPD account is active. In the **Current NAM profile** (MP205 and MP210), you specify which circuit switched account is active.

Creating or Changing a CDPD Account Profile

CAUTION - Changing an NEI in Toolkit, causes the modem to lose its credentials. Changing the NEI back to its original value is not sufficient to restore them. You will only be able to use that NEI again, if you contact your CDPD service provider and have the credentials reset.

Using Toolkit:

1. Click the tab for the account you wish to configure.
2. Enter the NEI, DNS, and Side Preference for the account. (Note that if you intend to use this account while "roaming" outside of the normal service area of your service provider, the recommendation is to use "A Preferred" or "B Preferred" as the side preference.)
3. If you want to set this account to register with only one specific service provider then click the check box for **Register with the following service provider only**. Enter the Service Provider Network Identifier (SPNI) number for the provider. (See the section called Specifying SPNI Numbers for CDPD Accounts for an explanation of this feature.)

   Leaving the box for **Register with the following service provider only** unchecked, allows the MP200 to attempt registration with any CDPD carrier.

4. This account will not be used by the MP200 until you set it as the current profile on the **General** tab.

   Click **Ok**, when complete. You will be prompted to save your changes, if applicable. Click **Yes** to save your changes, or **No** if you want Toolkit to revert to its previous entries.

Creating or Changing a CSC Account Profile

Using Toolkit:

1. Click the tab for the account you wish to configure.
2. Enter the NAM, System ID, and Side Preference for the account. (Note that if you intend to use this account while "roaming" outside of the normal service area of your service provider, the recommendation is to use "A Preferred" or "B Preferred" as the side preference.)
3. This account will not be used by the MP200 until you set it as the current profile on the **General** tab.

   Click **Ok**, when complete. You will be prompted to save your changes, if applicable. Click **Yes** to save your changes, or **No** if you want Toolkit to revert to its previous entries.

Changing the Current (Active) Profile

Using Toolkit:

1. Click the **General** tab.
2. For MP200 and MP210 models, use the pull down menu for the **Current NEI profile**, to select the CDPD account with which you want the modem to register.
3. For MP205 and MP210 models, use the pull down menu for the **Current NAM profile**, to select the circuit switched account with which you want the modem to register.
4. Click **Ok** to exit Toolkit. You will be prompted to save your changes. Click **Yes** to save your changes, or **No** if you want Toolkit to revert to its previous entries.

Power Management Settings

Using Toolkit:

1. Click the **Advanced Settings** tab.
2. Use the **Delayed Power Off Enabled** checkbox to specify whether you want the feature (which is described below) enabled or disabled.

   If you enable the feature, enter a **Time delay**. This is the amount of time (up to 240 minutes) during which the modem remains on after the ignition is powered off.
3. Use the **Enable CDPD Sleep** checkbox to enable or disable sleep mode (described below).

   If you enable the feature, enter a **Timeout**. This value determines how long it takes for the modem to switch to sleep mode when it is inactive. The value must be between 0 and 3600 seconds.

4. Click **`Ok`** to exit Toolkit. You will be prompted to save your changes. Click **`Yes`** to save your changes, or **`No`** if you want Toolkit to revert to its previous entries.

NOTE - The Remote Access section of the Advanced Settings tab, is designed to be used by the Technical Support department of Sierra Wireless for diagnostic purposes only. You should not make any changes to the **`Mode`** or **`UDP Port`** fields unless instructed to by a Sierra Wireless Technical Support representative. (This feature allows remote access to the MP200's MOBs, or, modem objects).

Specifying SPNI Numbers for CDPD Accounts

Specifying SPNI numbers for an NEI, is optional and relates to "roaming". Since roaming rates can be expensive, it may be to your benefit to obtain more than one CDPD account. For example, if you commonly travel between two areas served by two different carriers, you may want to have an account for each of the areas. Then as you travel from one area to another, you can switch accounts, rather than incur the expense of roaming.

Toolkit provides a method of restricting an NEI to registering with only one Service Provider. You can use this option to prevent an account from being used to "roam" outside the area served by your local Service Provider.

Delayed Power Off

There is no on/off switch on the MP200. It is powered on and off by means of the ignition sense wire of the power cable. Depending on how the MP200 has been installed, your modem may be set to power on and off using your vehicle's ignition switch, or using an external on/off switch. (Ignition options are described in the Installation Guide.)

The "Delayed Power Off" feature allows you to configure the MP200/MP210 to remain on when there is no power to the ignition sense wire. For example, assume your MP200 is installed in a car such that the modem is powered on only when the car ignition is turned to "on". In this scenario, you might want to configure the Delayed Power Off feature so that you would be able to use the modem when the car engine is off. The feature allows you to leave the modem on for up to 4 hours after the ignition sense is switched off.

CDPD Sleep Mode

CDPD sleep is a mode that reduces power consumption and extends battery life. This mode is available on the modems which support CDPD (the MP200 and MP210). When the MP200 is in sleep mode, incoming traffic waits on the network. The MP200 "wakes-up" at intervals to check for incoming network traffic. The exact duration of the interval is set by your CDPD carrier, but is usually close to one minute. If there is no incoming traffic, the MP200 resumes sleeping. If there is traffic, the MP200 wakes-up until another period of inactivity elapses. Any user-initiated traffic causes the MP200 to wake-up instantly.

Sleep mode is disabled when the MP200 is shipped. You can configure the MP200 so that it lapses into sleep mode after a specified period (between 10 and 3600 seconds) of inactivity.

Document Map

Back to Product List

Use the document map to jump to a subject of interest or turn the pages to read the full manual.

Previous Page Page Top Next Page

Close

Information Required From Service Provider for CDPD Accounts

The following information concerning your Service provider is needed to configure the MP for CDPD use:

- The **DNS** or Domain Name Server. This is the address of a network server that translates friendly names (like www.sierrawireless.com) into Internet Protocol (IP) addresses. Like all IP addresses, the DNS is made up of four numbers ranging in value from 0 to 255, separated by periods. (For example, 192.168.0.9) The DNS is required for Internet connectivity (i.e. web browsing). Some MP200 users choose to use a DNS address belonging to their organization, rather than the DNS of their Service Provider.
- **Side preference**, **A or B**. Most markets have two cellular service providers, one of which is called the A side carrier, and the other, the B side carrier. Each side has designated radio frequency channels.
- Optionally, the **SPNI** or Service Provider Network Identifier. This is useful information if you have more than one CDPD account, which may be advantageous if you want to use your MP200 throughout a large geograhical area, and avoid roaming charges.

You also require:

- The **NEI** or Network Entity Identifier for your account. This is your Internet Protocol (IP) address. (As an IP address, it has the same format as the DNS.) It identifies your MP200 on a CDPD network and on the Internet.

This information is needed to configure your MP200 using WirelessExpert or Toolkit.

Close

Close

Information Required From Service Provider for Circuit Switched Cellular Accounts

You require the following information to configure your MP for CSC use:

- The **NAM** or Number Assignment Module for your account. This is essentially your cellular phone number.
- The **Home System ID**. This is a number that identifies the service provider.
- **Side preference**, **A or B**. Most markets have two cellular service providers, one of which is called the A side carrier, and the other, the B side carrier. Each side has designated radio frequency channels.

This information is needed to configure your MP200 using WirelessExpert or Toolkit.

Close

Determining Windows 95 Version

Close

Windows 95 Version

To identify the version of Windows 95:

1. Select **`Start > Settings > Control Panel`** from the Taskbar.
2. Double click the **`System`** icon.

The `General` tab will indicate the version and build of Windows on your computer. This should indicate version number:

`4.00.950 B`, or
`4.00.950 C`

Versions without the trailing letter or with the letter **`A`** are earlier editions of Windows 95 and must be upgraded to use the MP200 software.

Close

- o **Welcome**
- o **Configuration**
- o **Win95/98 Installation**
  - o **Before Starting**
  - o MP200 Software
  - o Windows Components
- o **Troubleshooting**
- o **Service**
- o **Contact Us**

Before You Begin

The MP200 requires certain windows components that are usually installed with Windows 98 but may be missing from Windows 95 installations. Instructions for installing the components are included at the end of this document. If it is necessary to install these components, you will also need system files that are available on the Windows 95 CD (and may also be stored in .CAB files on your hard drive). It is recommended that you locate these files before you begin.

Installing the MP200 Software:

Follow these steps to install the software required to configure and use your MP200 modem:

1. Close any windows programs that are open.
2. If the MP200 product CD is not in the CD-ROM drive, insert it. This launches the web browser displaying the MP200 index.
3. Start the installation application by doing one of the following:
   - Click on this link, **setup.exe** , or,
   - Select **`Start > Run ...`** from the taskbar and enter **`d:\WinCode\Watcher\setup.exe`**, where ***d*** is your CD-ROM drive.
4. The Watcher Setup wizard launches, advising you to close any Windows programs before starting. Click **`Next`**.
5. Watcher Setup displays the license agreement. If you agree to the terms, click **`Yes`** to continue.
6. Watcher Setup asks you to choose a destination location. If you wish to copy the software to a location other than the default (C:\Program Files\Sierra Wireless Inc\Watcher 4-1), use the `Browse` button to select an alternative path. Click **`Next`**.
7. Watcher Setup checks that all the Windows components required by the MP200 are installed. If any are missing, a Network Configuration window is displayed, listing the missing components. Should this occur, complete the Watcher Setup installation and install the missing components afterwards. Instructions for this are provided below.

   (Instructions are also provided as on screen help at the end of the wizard.) Click **`Next`** to continue.
8. Watcher Setup displays a list of the applications it installs. Click the name of an application for a description of it. Click **`Next`** to continue.
9. The final screen of the setup wizard displays one of two options:
   - If all the Windows components required by the MP200 are already installed, the wizard displays this option, **`Yes, I want to launch WirelessExpert to setup my modem.`** Use the checkbox to indicate whether you want to launch WirelessExpert and click **`Finish`**.

- If required Windows components are missing, the wizard displays a message informing you that you must now install them and displays the option, **`Yes, I would like to see the help documents.`** You must install the missing component(s) — Dial-Up Networking and/or TCP/IP before the modem can be configured. The instructions are below, and, the above mentioned option allows you to display them on the screen. Use the checkbox to indicate whether you want to display the help and click **`Finish`**.

Upon completion of the Watcher Setup wizard, the MP200 software is installed. You can now proceed to configure the modem with WirelessExpert, or, if Watcher Setup indicated that windows components were missing, install dial-up networking or TCP/IP.

Installation of Windows Components:

Dial-Up Networking

To install Dial-Up Networking:

1. Select **`Start`** > **`Settings`** > **`Control Panel`**. Double click **`Add/Remove Programs`**.
2. In the Add/Remove Programs Properties window, click the **`Windows Setup`** tab.
3. Select the **`Communications`** component so that it is highlighted, and click the **`Details...`** button.
4. The Communications window appears. Click the box for **`Dial-Up Networking`** so that it is checked, and click **`OK`** to exit the Communications Window.
5. Click **`OK`** to exit the Add/Remove Programs Properties window. You will be prompted for the location of the files. Insert the Windows CD and enter the path ***`d:`*** where ***`d`*** is your CD-ROM drive (or provide the path to the *.CAB files if they are on your hard drive). Leave the Control Panel window open.

You can now proceed to install TCP/IP if necessary, or to configure the modem with WirelessExpert.

TCP/IP

To install TCP/IP:

1. In the Control Panel window, double click the **`Network`** icon.
2. On the **`Configuration`** tab, click the **`Add...`** button.
3. In the Select Network Component Type window, select **`Protocol`** and click the **`Add...`** button.
4. In the Select Network protocols window, under Manufacturers, select **`Microsoft`**. Under Network Protocols, select **`TCP/IP`** and click **`OK`**.
5. Click **`OK`** to exit from the Select Network Component Type window and you will be prompted for the location of the files. Enter the path ***`d:`*** where ***`d`*** is your CD-ROM drive (or provide the path to the *.CAB files if they are on your hard drive).

6. When the installation is complete you will be prompted to restart your computer. Click **`Yes`**.

When the restart is complete, you can proceed to configure the modem with WirelessExpert.

Previous Page Page Top Next Page

Document Map

Back to Product List

Determining Windows NT Version

Close

Windows NT Version

To identify the version of Windows NT:

1. Select **`Start > Programs > Administrative Tools (Common) > Windows NT Diagnostics`** from the Taskbar.

   The Version Tab will indicate the version and build of Windows on your computer. This should indicate:

   `Version 4.0 (Build xxxx: Service Pack 5)`

   If you do not see **`Service Pack 5`** then you must upgrade your Windows NT installation in order to use the MP200 software.

Close

o **Welcome**
o **Configuration**
o **Win NT Installation**

o **Before Starting**
o MP200 Software
o Modem Profile
o Dial-Up Networking

o **Troubleshooting**
o **Service**
o **Contact Us**

Before You Begin

Windows NT requires that you be logged in as the Administrator, or have adminstrative privileges, in order to install a modem. You may also require the original Windows CD for some library files, and your Service Pack 5 installation to refresh some files.

Installing the MP200 Software:

Follow these steps to install the software required to configure and use your MP200 modem:

1. Close any windows programs that are open.
2. If the MP200 product CD is not in the CD-ROM drive, insert it. This launches the web browser displaying the MP200 index.
3. Start the installation application by doing one of the following:
    - ❍ Click on this link, **setup.exe** , or,
    - ❍ Select **`Start > Run ...`** from the taskbar and enter ***d*****`:\WinCode\Watcher\setup.exe`**, where ***d*** is your CD-ROM drive.
4. The Watcher Setup wizard launches, advising you to close any Windows programs before starting. Click **`Next`**.
5. Watcher Setup displays the license agreement. If you agree to the terms, click **`Yes`** to continue.
6. Watcher Setup asks you to choose a destination location. If you wish to copy the software to a location other than the default (C:\Program Files\Sierra Wireless Inc\Watcher 4-1), use the `Browse` button to select an alternative path. Click **`Next`**.
7. Watcher Setup checks that all the Windows components required by the MP200 are installed. If any are missing, a Network Configuration window is displayed, listing the missing components. Should this occur, complete the Watcher Setup installation and install the missing components afterwards. Instructions for this are provided below. (Instructions are also provided as on screen help at the end of the wizard.) Click **`Next`** to continue.
8. Watcher Setup displays a list of the applications it installs. Click the name of an application for a description of it. Click **`Next`** to continue.
9. The final screen of the setup wizard displays one of two options:
    - ❍ If all the Windows components required by the MP200 are already installed, the wizard displays a message informing you that you must now install a **modem profile** and displays the option, **`Yes, I would like to see the help documents.`** The help document displayed by this option provides the instructions from the section called Installing A Modem Profile below. Use the checkbox to indicate whether you want to display the help and click **`Finish`**.
    - ❍ If required Windows components are missing, the wizard

displays a message informing you that you must now install them and displys the option, **Yes, I would like to see the help documents.** The help documents displayed by this option provide the instructions from the section called Installing Dial-Up Networking below. Use the checkbox to indicate whether you want to display the help and click **Finish**.

Upon completion of the Watcher Setup wizard, the MP200 software is installed. You can now proceed to install a modem profile, or, if Watcher Setup indicated that windows components were missing, install dial-up networking.

Installing A Modem Profile:

Follow these steps to install a modem profile for the MP200:

1. Select **Start** > **Settings** > **Control Panel**. Double click **Modems**.
2. The Modem Properties window appears. On the **General** tab, click the **Add...** button.
3. The Install New Modem wizard is launched, displaying a message indicating that it will try to detect your modem. Ensure the option **Don't detect my modem; I will select it from a list** is checked. Click **Next**.
4. The Install New Modem wizard displays a list of manufacturers and models. From the **Manufacturers** list, select **Sierra Wireless**. From the **Models** list, select your model (**Sierra Wireless MP200 NT** or **Sierra Wireless MP205 NT** or **Sierra Wireless MP210 NT**). Note that all models in the MP200 series of modems have **MP200** printed on the face plate. The **actual model number is printed on a label on the back** of the modem. Click **Next**.
5. The next screen shows you the model you selected and prompts you for a communications port. Ensure **Selected ports** is selected and in the list of communications ports, select the port to which the MP200 is attached. Click **Next**.
6. You should then be notified that the modem has been setup successfully. Click **Finish**.
7. The Install New Modem wizard should then close. Close the Modem Properties window by clicking the **Close** button.
8. Windows then displays a message indicating that Dial-Up Networking needs to be configured and prompting, "**Would you like to do this now?**" Click **Yes**.
9. The Remote Access Setup window appears. Click the **Add...** button.
10. The Add RAS Device window appears. Under the label **RAS Capable Devices:** locate your model of modem (**Sierra Wireless MP200 NT** or **Sierra Wireless MP205 NT** or **Sierra Wireless MP210 NT**) and select it. Click **OK**.
11. The Remote Access Setup window is redisplayed. Click **Continue**.
12. You are then prompted to restart the computer. Click **Yes**.

Once the computer completes the restart, you can launch WirelessExpert and proceed to configure the MP200.

Installing Dial-Up Networking:

The system files required to install Dial-up Networking and TCP/IP are on the Windows CD (and may also be stored in .CAB files on your hard drive). It is recommended that you locate these files before proceeding.

Follow these steps:

1. Select **Start** > **Settings** > **Control Panel**. Double click **Network**.
2. Windows displays a message asking if you want to install Windows NT Networking. Click **Yes**.
3. You will be prompted as to how this computer should participate on a network. In this screen, ensure the option **Remote access to the network** is checked, and the option `Wired to the network` is **not** checked. Click **Next**.
4. In the next screen, you are given the option of searching for a network adapter. No entries are required here. Click **Next**.
5. You are then prompted for the network protocols used on your network. Ensure the option **TCP/IP Protocol** is checked and click **Next**.
6. The wizard displays a list of network services that you can install. Ensure the option **Remote Access Service** is checked and click **Next**.
7. The wizard displays a message notifying you that Windows is ready to install the network components you selected. Click **Next**.
8. You are then prompted for a path. Insert the Windows CD and enter ***d*****:** where ***d*** is the drive letter for your CD-ROM. (Or, if the system files are stored on your hard drive, enter the path to the appropriate folder.) Click **Continue**.
9. A window then displays a brief explanation of DHCP and you are prompted, ":**Do you wish to use DHCP?**". Click **No**.
10. You are then prompted as to whether you want RAS setup to invoke a Modem installer to enable you to add a modem. Click **Yes**.
11. The Install New Modem wizard is launched, displaying a message indicating that it will try to detect your modem. Ensure the option **Don't detect my modem; I will select it from a list** is checked. Click **Next**.
12. The Install New Modem wizard displays a list of manufacturers and models. From the **Manufacturers** list, select **Sierra Wireless**. From the **Models** list, select your model (**Sierra Wireless MP200 NT** or **Sierra Wireless MP205 NT** or **Sierra Wireless MP210 NT**). Note that all models in the MP200 series of modems have **MP200** printed on the face plate. The **actual model number is printed on a label on the back** of the modem. Click **Next**.
13. The next screen shows you the model you selected and prompts you for a communications port. Ensure **Selected ports** is selected and in the list of communications ports, select the port to which the MP200 is attached. Click **Next**.

14. You should then be notified that the modem has been setup successfully. Click **`Finish`**.
15. The Add RAS Device window displays the model of modem, and communications port you selected. Click **`OK`**.
16. The Remote Access Setup window is displayed. The model of modem, and communications port you selected should be highlighted. Click **`Continue`**.
17. The next window allows you to disable network bindings. No entries are required. Click **`Next`**.
18. The next window informs you that Windows is now ready to start the network. Click **`Next`**.
19. You will then be prompted to select whether your computer will be participating in a workgroup or a domain. Make the entries appropriate to your network environment and click **`Next`**.
20. The final screen of the wizard announces that networking has been installed. Click **`Finish`**.
21. You are then prompted to restart the computer. Click **`Yes`**.

Once the computer completes the restart, you can launch WirelessExpert and proceed to configure the MP200.

Previous Page Page Top Next Page

Document Map

Back to Product List

o **Welcome**
o **Configuration**
o **Win2000 Installation**
  o **Before Starting**
  o MP200 Software
  o Modem Profile
o **Troubleshooting**
o **Service**
o **Contact Us**

Before You Begin

Windows 2000 requires that you be logged in as the Administrator, or have adminstrative privileges, in order to install a modem. You may also require the original Windows CD for some library files.

Installing the MP200 Software:

Follow these steps to install the software required to configure and use your MP200 modem:

1. Close any windows programs that are open.
2. If the MP200 product CD is not in the CD-ROM drive, insert it. This launches the web browser displaying the MP200 index.
3. Start the installation application by doing one of the following:
   - Click on this link, **setup.exe** , or,
   - Select **`Start > Run ...`** from the taskbar and enter ***d*`:\WinCode\Watcher\setup.exe`**, where ***d*** is your CD-ROM drive.
4. The Watcher Setup wizard launches, advising you to close any Windows programs before starting. Click **`Next`**.
5. Watcher Setup displays the license agreement. If you agree to the terms, click **`Yes`** to continue.
6. Watcher Setup asks you to choose a destination location. If you wish to copy the software to a location other than the default (C:\Program Files\Sierra Wireless Inc\Watcher 4-1), use the `Browse` button to select an alternative path. Click **`Next`**.
7. Watcher Setup displays a list of the applications it installs. Click the name of an application for a description of it. Click **`Next`** to continue.
8. The final screen of the setup wizard informs you that you must now install a **modem profile** and displays the option, **`Yes, I would like to see the help documents.`** The help document displayed by this option provides the instructions from the section called Installing A Modem Profile below. Use the checkbox to indicate whether you want to display the help and click **`Finish`**.

Upon completion of the Watcher Setup wizard, the MP200 software is installed. You can now proceed to install a modem profile.

Installing A Modem Profile:

Follow these steps to install a modem profile for the MP200:

1. Select **`Start`** > **`Settings`** > **`Control Panel`**. Double click **`Phone and Modem Options`**.
2. The Phone and Modem Options window appears. Select the **`Modems`** tab, and click the **`Add...`** button.
3. The Add/Remove Hardware wizard is launched, displaying a message

indicating that it will try to detect your modem. Ensure the option **`Don't detect my modem; I will select it from a list`** is checked. Click **`Next`**.

4. The Install New Modem wizard displays a list of manufacturers and models. From the **`Manufacturers`** list, select **`Sierra Wireless`**. From the **`Models`** list, select your model (**`Sierra Wireless MP200 CDPD`** or **`Sierra Wireless MP205 CSC`** or **`Sierra Wireless MP210 CDPD`**). Note that all models in the MP200 series of modems have **MP200** printed on the face plate. The **actual model number is printed on a label on the back** of the modem. Click **`Next`**.
5. The next screen shows you the model you selected and prompts you for a communications port. Ensure **`Selected ports`** is selected and in the list of communications ports, select the port to which the MP200 is attached. Click **`Next`**.
6. The **`Digital Signature Not Found`** screen then appears, warning you that you are about to install a driver that does not contain a Microsoft digital signature. You will be asked if you want to continue. Click **`Yes`**.
7. You should then be notified that the modem has been setup successfully. Click **`Finish`**.
8. The Install New Modem wizard should then close. Close the Phone and Modem Options window by clicking the **`OK`** button.

You can now launch WirelessExpert and proceed to configure the MP200.

Previous Page Page Top Next Page

Document Map

Back to Product List

Close

- **File**
  - Register
  - Log Session
  - Exit
  - Exit to CSC
- **View**
- **Tools**
- **Help**

File Options

File > Register

A check mark to the left of the option indicates that the MP200 is currently registered. Selecting the **`Register`** option toggles the registration state on the CDPD network. If the modem is not registered, you are disconnected from the network.

If you manually de-register, the MP200 remains de-registered until you select to register again. This is true even if Windows is re-started.

This can be used to disconnect from the network in order to work off-line. This may be desirable if your service provider bills based on the volume of network traffic. Selecting the option again will re-register you, restoring your connection to the network.

Close

- **File**
- **View**
- **Tools**
- **Help**

File > Log Session

A check mark to the left of the option indicates that Watcher is logging network registration and housekeeping messages to disk for diagnostic purposes. Selecting the **`Log Session`** option toggles the logging feature on and off.

When active, Watcher saves the network messages to a text file for later analysis. The file is stored in the Watcher installation directory (usually **`C:\Program Files\Sierra Wireless Inc\Watcher 4-1`**). The name of the file is WatcherLogX.txt, where X is the number of the file. (The files are numbered sequentially starting at 0. A new file is started each time the current file reaches 16 Mb.) These files are retained until you delete them.

The logging option setting is retained across Watcher sessions. If Watcher is closed with the option on, logging will automatically resume the next time Watcher is started.

Close

- File
- View
- Tools
- Help

File > Exit

This option can be used to close the Watcher application. It has no effect on the state of your CDPD network connection. The MP200 will remain registered with the network (or manually de-registered) after Watcher closes.

Close

- File
- View
- Tools
- Help

File > Exit to CSC

This option is available with the MP210 only. It allows you to close Watcher and switch from CDPD mode to circuit switched cellular mode. (This option causes you to lose your CDPD connection if you have one.)

Close

- File
- **View**
  - Hide Window
  - Always on top
  - Log Enabled
  - Verbose Logging
  - Refresh (F5)
- Tools
- Help

View Options

View > Hide Window

The **`Hide Window`** option removes the Watcher window from your desktop but leaves the application running in the background. The small Watcher icon in the system tray (located in the bottom right of the task bar) indicates your status on the CDPD network.

Scanning
Registered
Transmitting
Not registered

Double-clicking the icon will re-open the Watcher window.

Close

- File
- View
- Tools
- Help

View > Always on top

A check mark appears to the left of this option if the Watcher window is set to appear on top of any other windows. Selecting the option toggles it on and off.

When active, the Watcher window appears on top of any other application window on the desktop. This is useful for monitoring your connection while using a network application in full screen mode.

Close

o File
o View
o Tools
o Help

View > Log Enabled

This option allows you to display the messages being transmitted across the network. The messages are displayed in an extension of the Watcher window below the status bar. A check mark to the left of the option indicates that it is on. Selecting the option toggles it on and off. A description of the messages appears in the Log Messages document.

Close

o File
o View
o Tools
o Help

View > Verbose logging

Used in conjuction with the logging feature described under File > Log Enabled this option extends the range of message types which are logged. When verbose logging is active, all network messages are displayed. When *not* enabled, messages are filtered so that the more technical messages are hidden. A description of the messages appears in the Log Messages document.

Close

o File
o View
o Tools
o Help

View > Refresh (F5)

Pressing <F5> while Watcher is the active window (or selecting **`View > Refresh`**) forces Watcher to update the display. Normal updating of signal strength, channel, status, and counters is based on network events. To update the display between these events you can use this option.

Close

o File
o View
o Tools
  o Channel Lock
  o Perf Monitor
o Help

Tools Options

Tools > Channel Lock

The **`Channel Lock`** option allows you to restrict the MP200 to one channel on the CDPD network.

Caution - Turning the channel lock on prevents the MP200 from scanning. The channel lock feature is designed for testing only, and should not be used in normal day to day operation of the MP200. Locking the channel may cause you to lose signal, and may cause interference on the network.

To use the option, select **`Tools > Channel Lock`**. Check **`Enable Channel Lock`** `and enter a valid CDPD` channel (between 1 and 799, or, 990 and 1023) under **Enter Channel**. A lock icon then appears next to the channel number 🔒 on the status bar.

Close

o File
o View
o Tools
o Help

Tools > Performance Monitor

If you have installed the System Monitor option in Windows, this menu item opens the monitor, allowing you to see a real-time display of several of the MP200's activities and conditions.

Included in the performance monitor's MP200 category are:

- Bytes received per second
- Bytes transmitted per second
- Channel
- Forward BLER (Block Error Rate)
- Radio Temperature
- RSSI (Received Signal Strength Indicator)
- Rx Compression Ratio %
- Tx Compression Ratio %

If the Windows System Monitor is not installed, nothing occurs when you select this option.

Close

o File
o Tools
o View
o **Help**
  o About

Help Options

About ...

This item gives you information about the version of Watcher and its enabling software as well as the device EID and current NEI of your MP200.

Close

Close

The Message Log

The message log in CDPD Watcher displays the transmissions between the CDPD network and the MP modem. Note that it is the network that generates the messages — not the modem. The following table provides a brief description of most of the messages that appear in Watcher.

`Establishing data link ...`	This is the first step in establishing a connection on the CDPD network. It involves "handshaking", where both ends of the data link agree on the protocols to be used.
`Unable to start data link`	This indicates a failure to establish a connection at the most basic level.
`Initializing encryption ...`	This is the second step in establishing a connection on the CDPD network. All network traffic is encrypted for security reasons. This step involves the transmission of an encryption key that is used by both ends of the data link to encrypt and decipher the data.
`No encryption key received; retrying ...`	This indicates a failure in the transmission of the encryption key.

`Registration sent; awaiting confirmation ...`	This step is the equivalent of "logging-on" to a network. The CDPD network checks the MP's credentials to ensure the device is authorized for network service.
`Registered: xxxx`	This message indicates that the registration was successful. The name of the service provider is displayed.
`Registration failure: No response from network`	This indicates that the CDPD network did not respond to registration attempts.
`Registration denied:` or, **`Registration failure:`** followed by: **`Rejected by network`** or, **`Not authorized for network`** or, **`Authentication failure`**	These messages indicate a failure to authorize the MP modem on the CDPD network. This may be because; the NEI (Network Equipment Identifier) is not recognized; the credentials are not valid, a data corruption occurred in transmission; or, other reasons.
`Registration denied: Usage limits exceeded`	This indicates that the network has failed to authorize the MP modem because your account limits your use of network services. This limit is set by your service provider.
`Device is not configured`	This indicates that the MP is not properly configured.

`Inter-area cell transfer in progress`	CDPD service areas are divided into geographic zones called "cells". Each cell has its own cellular base station. This message occurs when travelling from one cell to another and it indicates that you are being "handed off" to a different cell.
`Local service denied: Try alternate carrier`	This indicates that your account (as configured) does not provide service in this area.
`Deregistered at user request`	This indicates that the MP was manually deregistered. You can manually deregister by selecting **`Register`** from the **`File`** menu in CDPD Watcher, or by clicking the LED icon.
`Sleep`	This message indicates that the MP is in sleep mode. In this mode, current drain is reduced in order to extend battery life. The MP can be configured (in Toolkit) to go into sleep mode when unused for a specified period.

`Scan: initiated, channel XXX, rssi xxx dBm`	On the CDPD network, devices do not have dedicated channels. Since the channels are shared, the network often requires devices to hop from one channel to another. This message indicates that the MP is scanning for a channel. RSSI stands for Received Signal Strength Indicator, which is measured in "dBm" (decibels relative to 1 milliwatt).
`Scan: timer expired`	On the CDPD network, devices are required to scan for a valid channel periodically. This message indicates that a scan was initiated because a specified amount of time had elapsed since the last scan.
`Reacquired same cell, channel xxx, rssi xxx dBm`	This message indicates that no change in cell or channel was required.
`Channel hop`	The message indicates that a change in channels occurred.
`Cell transfer, new channel xxx, rssi xxx dBm`	This message occurs when there is a handoff between cells. It displays the new channel and signal strength.
`Network transfer, new channel xxx, rssi xxx dBm`	This message indicates a handoff between service providers. It displays the new channel and signal strength.

`Scanning for service ...`	This indicates that a wide area scan is occurring. This message is usually displayed when you initiate a connection.
`Service Provider xxxxx`	After you register on the CDPD network, this message displays the name of the service provider with whom you are registered.
`Rssi: xxx dBm`	This displays the received signal strength indicator (RSSI) in decibels relative to 1 milliwatt.
`Device EID: 00-A0-D5-xx-xx-xx`	This displays the Electronic Identifier (EID). Each CDPD device has a unique EID.
`Driver version: xxxx`	This displays the version of the modem driver.
`Scan: RSSI threshold>, channel xxx, rssi xxx dBm`	This indicates that a scan has been initiated due to a high RSSI value.
`Scan: RSSI threshold<, channel xxx, rssi xxx dBm`	This indicates that a scan has been initiated due to a low RSSI value.
`Scan: New cell configuration received`	This message indicates that a scan has been initiated due to a handoff between cells.
`Scan: BLER threshold exceeded, channel xxx, rssi xxx dBm`	This message indicates that a scan has been intiated due to a high block error rate (BLER).

`Scan: Reverse link quality (no-busy), channel xxx`	Each block of data transmitted over the CDPD network is supposed to have a "busy bit", that indicates whether the channel is being used by another device. This message indicates that a scan has been initiated because no "busy bit" was received.
`Scan: Reverse link quality (max-tx), channel xxx`	This message indicates that a scan has been initiated because a limit on the number of transmission attempts was reached.
`Scan: Unexpected color code, channel xxx, rssi xxx`	Each cell in a CDPD network has a "color code". This message indicates that a scan has been initiated because the MP did not receive the expected color code.
`Scan: Registration failure, channel xxx, rssi xxx dBm`	This indicates that a scan has been initiated because an attempt to register on the network failed.
`Low-power sleep`	This indicates that the MP is in sleep mode (described above).
`Wakeup`	This indicates that the modem is switching out of sleep mode. The MP wakes up anytime you cause there to be network traffic.

`Scan: Invalid SPNI, channel xxx, rssi xxx dBm`	SPNI stands for service provider network identifier. This message indicates that the MP is configured to use a SPNI that does not provide service in this area or does not exist. (This configuration is done in Toolkit.)
`Scan: Channel lock`	CDPD Watcher has a channel lock feature that allows you to specify the channel that the MP is to use. This message occurs when you have locked a channel and it indicates that the MP is scanning for the channel you specified.
`Driver version: xxxx`	This displays the version of the modem driver in use.

Close

2110248 Rev 1.0
March 2000

Welcome to the MP200 Series Integration Guide

This Guide is intended for system integrators responsible for implementing special features of the MP200 Series. Familiarity with modem AT commands is assumed.

The features requiring special integration are:

- GPS Option including: general integration, Differential input, and NMEA output.
- I/O Port Features including: Panic button, telemetry input, and remotely controled outputs.
- Start-up Modes including CDPD SLIP on start-up for automatic network connection in telemetry applications.
- UDP PAD Service for packet assembly and disassembly in the modem instead of the host system.

Installation issues for GPS and I/O port use are covered in sections of the Installation Guide. This document covers additional detail on configuration and use of these features.

Use the document map to jump to a subject of interest or turn the pages to read the full manual.

Page Top Next Page

o **Product Manual**
o **Installation Guide**
o **Configuration Guide**

o **Integration Guide**

  o **Overview**
  o GPS Option
  o I/O Ports
  o Start Modes
  o UDP PAD

o **Troubleshooting**
o **Service**
o **Contact Us**

Document Map

Back to Product List

- **Product Manual**
- **Installation Guide**
- **Configuration Guide**

- **Integration Guide**

  - Overview
  - **GPS Option**
    - GPS Telemetry
    - Directed Reporting
    - Differential
    - NMEA Output
  - I/O Ports
  - Start Modes
  - UDP PAD

- **Troubleshooting**
- **Service**
- **Contact Us**

- GPS Option (top)

  - **GPS Telemetry**
    - Remote
    - Local TAIP
    - Local NMEA
  - Directed Reporting
  - Differential
  - MNEA Output

GPS Integration

This section deals with GPS integration, including use of Differential GPS and NMEA compliant devices. There is also a discussion of the Directed Reporting feature of firmware version 2.8.0 and above.

Integrators of the GPS option should be familiar with the material covered by the following documents:

- Primer on GPS Operation (PDF)
- GPS Option User Guide
- TAIP Reference (PDF)

GPS Telemetry

Obtaining position, heading, and velocity data from the GPS module for use in vehicle tracking and location plotting can be achieved in three primary ways:

- Remote TAIP - for tracking a vehicle or fleet from a central (fixed) location.
- Local TAIP - within the vehicle for plotting (using TAIP).
- Local NMEA - within the vehicle for feeding to NMEA compliant devices.

All methods are available simultaneously.

Remote TAIP

This is the most common use of GPS data in MP200 installations. The data from the GPS module is obtained over the CDPD network by establishing a UDP client session with the MP200.

The central office sends a TAIP query to the MP200's IP address (NEI) on port 21000. This opens the connection and the unit will respond and send scheduled messages to the client. The session opened **does not** interfere with the MP200's normal CDPD operation (except for the small portion of bandwidth consumed by GPS telemetry traffic).

The connection details are described in the GPS User Guide and also discussed below under Directed Reporting.

Integrating the central office host (client) will depend on the application needed. The integrator needs only to be familiar with the Trimble ASCII Interface Protocol (TAIP) and the range of messages available. The TAIP Reference (PDF) provides full details of the protocol.

Sierra Wireless make available a monitoring utility called SkyWatcher for simple diagnostic use. Consult the SkyWatcher II User Guide for details on its use.

Local TAIP

The reporting capabilities of the remote session are also available to the local user. In this situation the TAIP data is delivered to the host computer connected to the MP200 **DATA** port. If the GPS data needs to be sent to a separate destination device, either the host computer must have an application to forward the local TAIP data, or the separate NMEA Output should be used.

For Local TAIP, the user opens the UDP session by sending a TAIP query to IP address 192.0.2.1 port 21000. This session **does not** interfere with any other data traffic routed through the MP200 modem.

The connection details are described in the GPS User Guide.

The SkyWatcher monitoring utility can be used on a local connection to the MP200 provided CDPD Watcher is running on the host (or a Dial-up Networking connection to the MP is active). Consult the SkyWatcher User Guide for details on its use.

- GPS Option (top)
  - Telemetry
  - **Directed Reporting**
    - Standard
    - Directed
  - Differential
  - NMEA Output

Directed Reporting

With GPS telemetry delivered in UDP packets, the MP needs to know where to route the messages coming from the GPS module. With firmware version 2.8.0 and above, the MP supports two methods of routing GPS data. The method is selected using bit 1 of register +WS225 in CDPD mode. When the bit is clear (0), Standard Reporting is used; when set (1), Directed Reported is used. Consult the MP200 Series AT Command Reference (PDF) for details on the register's use.

Standard Reporting

This method of routing GPS data packets is consistent with all firmware versions in the MP. Client sessions are opened when a TAIP message is received by the modem. All messages from the GPS module are routed to the calling client.

The MP will save the client's IP address and port in non-volatile memory so that it is retained across power-cycles. The session is kept open until explicitly closed by the client sending a null message (**><**).

Should a different remote client send a TAIP message to the MP, that caller will "steal" the session from the first client. The new client's IP address and port replace those of the first caller in the MP's non-volatile memory.

When the session is closed (with the null TAIP sentence) the value in the MP memory is replaced with zeroes, indicating that there is no open remote session. Without an open session, any data from the GPS module is quietly discarded by the MP.

Firmware version 2.8.0 and above adds a new psuedo-TAIP command to query and set the client session IP address and port. This allows a second user to take over the client session for a brief period, usually for diagnostic checks, and then restore the earlier session so that GPS data resumes to the original client.

The new commands are **>QRA<** to query for the current session client and **>SRA<** to force a setting for the client session.

When a remote station issues the **>QRA<**, the MP will respond with an

>RRA< statement including the IP address and port stored in non-volatile RAM. This query will **not** "steal" the session. Only valid TAIP messages to the GPS module will cause a change to the new client.

Following a diagnostic session, the user can restore the "stolen" session by sending the **>SRA<** statement with the IP address and port reported by the first query. The MP will set the specified address as the open client session and route all subsequent messages from the GPS module to the named client.

Directed Reporting

A new feature with firmware version 2.8.0 and above is the ability to assign an IP and port number to the MP's memory setting for the open client session, and *hold that session open* while allowing other clients to send and receive individual TAIP sentences.

When Directed Reporting is set (by setting bit 1 of +WS225), any client query to the GPS will **not** open a session as it normally would with Standard Reporting. Instead, the MP will forward the next GPS message (the reply) to the caller and terminate the connection. The caller's IP and port are only retained long enough to issue the reply.

To open a session to receive un-solicited messages (scheduled reports) from the GPS module, the new psuedo-TAIP command **>SRA<** must be issued with the IP address and port of the station which is to receive the GPS telemetry.

Once opened, the MP will route all un-solicited traffic from the GPS module to that client. This continues until the session is explicitly closed with a setting of zeroes or by the designated client issuing the null TAIP sentence.

While the Directed Reporting session is open, any number of other remote clients can issue TAIP queries and settings without "stealing" the session from the directed client.

Note that clients issuing Set commands will not receive a response if the GPS Reporting Mode has set EC_FLAG=F. There is never a reply to the **>SRA<** statement. The user can always issue queries to verify that settings have been applied.

o GPS Option (top)
  o GPS Telemetry
  o Directed Reporting
  o Differential
    o Standard
    o Inverted
  o NMEA Output

Differential GPS

The standard GPS module option in the MP200 Series is capable of receiving, and automatically applying, differential GPS corrections in RTCM-SC104 format. User's wanting to implement Inverted Differential GPS must have ordered the MP200 with that form of the module installed by the factory.

Standard Differential GPS

To apply standard differential GPS corrections, the correction data need only be delivered to the module. The application of the corrections is automatic when the data is available. Correction data can be delivered to the GPS module in two ways: RTCM or TAIP.

Most commonly, a differential GPS receiver is added to the system and its output is delivered in RTCM protocol to the auxiliary port input of the module. Consult the GPS Option User Guide for a discussion of receiver types and installation.

This method requires that the receiver be able to issue the data at RS-232C levels, preferably at 4800 bps, 8 data bits, No parity, and 1 stop bit.

In the event that the receiver cannot transmit data at the default setting of the GPS auxiliary port, it may be possible to reconfigure the port at the GPS to match the differential receiver. The TAIP command AP (Auxiliary Port Characteristics) can be used to change the settings the GPS uses on the port.

CAUTION - Changes to the port characteristics will also affect the data rate used for NMEA output.

An alternate method to feed differential corrections to module is use TAIP over a remote or local connection. TAIP includes two statements: Differential Corrections (DC) and Delta Differential Corrections (DD). Sending these from a central host is possible but rarely implemented.

Inverted Differential GPS

Use of Inverted Differential GPS requires that the module be configured at the factory for this service. In this case, the module will not apply any corrections locally. Only the unprocessed data from the module is delivered to the remote client where the corrections are applied.

MP modems with GPS modules configured for Inverted Differential GPS are noted on the back panel label with the code **-GPS(i)**.

Implementation of this type of system requires host-end work and is beyond the scope of this documentation.

---

o GPS Option (top)

  o GPS Telemetry
  o Directed Reporting
  o Differential
  o NMEA Output

NMEA Output

The GPS Option in the MP modem is capable of delivering two NMEA 0183 statements with the talker ID: GPS Fix Data (GGA), and Track Made Good and Ground Speed (VTG).

These are transmitted from the module's auxiliary port at one-second intervals whenever the GPS unit has a working real-time clock (at least one satelite has been acquired). There is no need to configure anything to activate this feature; it is activated by default.

Data is delivered at a default rate of 4800 bps, 8 data bits, No parity, and 1 stop bit. The rate can be changed if needed using the TAIP command AP (Auxiliary Port Characteristics).

CAUTION - Changes to the port characteristics will also affect the data rate used for Differential input.

NOTE - The NMEA output is presented on pin 6 of the I/O connector on the MP front panel. This signal is at TTL/CMOS level (5V) rather than RS-232C level. A TTL to RS-232 converter such as the B&B Electronics Model 232LPTTL is needed to connect with most NMEA compliant devices.

Connect I/O Port Pin 7 (GND) to DB-9 Pin 5 (GND) and I/O Port Pin 6 (GPS Aux Out) to DB-9 Pin 2 (RxD) to send data from the MP GPS (DCE) to a host (DTE) device.

The selection of NMEA statements available and the frequency of update cannot be adjusted by the user.

Document Map

Back to Product List

Back Page Top Next Page

o **Product Manual**
o **Installation Guide**
o **Configuration Guide**

o **Integration Guide**

o Overview
o GPS Option
o **I/O Ports**
o **Overview**
o Hardware
o Read/Write Control
o Start Modes
o UDP PAD

o **Troubleshooting**
o **Service**
o **Contact Us**

I/O Port Integration

This section deals with integrating the I/O Port features of the MP I/O connector. Both the hardware integration and control access are covered.

There are four I/O Ports available on the connector: two digital I/O ports, one analog to digital input, and one digital to analog output. These can be used to detect switch positions, read a meter or other variable voltage output device, or control a device (such as a valve or positioning system) which uses variable voltage input.

The digital ports are configurable for input or output using a supplimental program called **PortWatcher** which in not yet available (at the time of this writing) but will be available from the Sierra Wireless web site in the second quarter of 2000. That program will include an update to this document (2110248) with details on configuration options, including a "panic button" feature on the first digital input.

At this time, the default configuration is described below.

---

o I/O Ports (top)

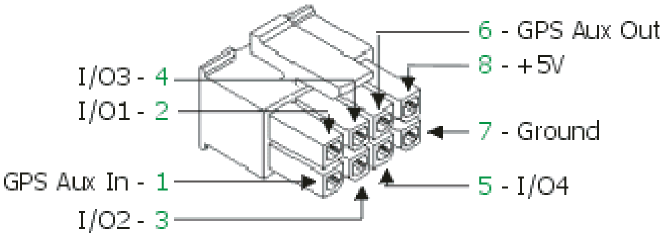
o Overview
o **Hardware**
o Connector
o Digital Input
o Analog Input
o Analog Output
o Read/Write Control

I/O Port Hardware Integration

This section covers the details of the physical and electrical interface to the I/O ports. Only the ports to be used need be connected.

I/O Port Connector

The I/O Ports are available on the **I/O** connector on the front panel of the MP. This connector is an 8-pin Molex connector. The part number for the connector is 43025-08000. The part number for the female terminals within the connector is 43030-0007. Use wire of a gauge of 20 to 24 AWG. The pin designations are as follows:



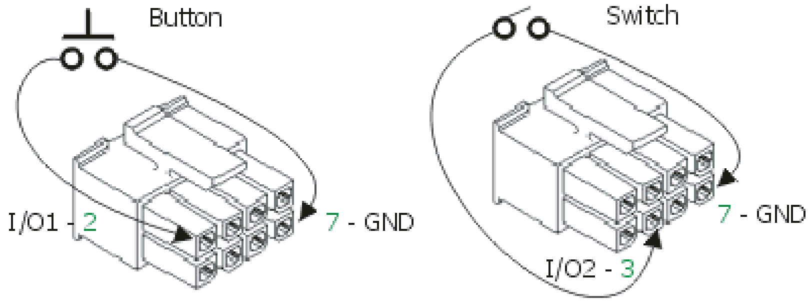
Pin numbers are shown in **Green**.

Pin #	Name	Application	Levels
1	GPS Aux In	RTCM Differential GPS Input	RS-232C
2	I/O1	Digital I/O (Panic Button)	TTL
3	I/O2	Digital I/O (General Input)	TTL
4	I/O3	Analog to Digital 8-bit Input	0 to +4V
5	I/O4	Digital to Analog 6-bit Ouput	0 to +4V
6	GPS Aux Out	NMEA Output	TTL

7	Ground	Signal Ground	GND
8	+5V	+5V (&plusminus;10% at 10mA)	+5V

Digital Input

There are two digital I/O Ports: I/O1 and I/O2. Both are configured for input by default. These are found on pins 2 and 3 of the connector. Typically a button or switch is connected between Ground (Pin 7) and the input port.



Pin numbers are shown in **Green**.

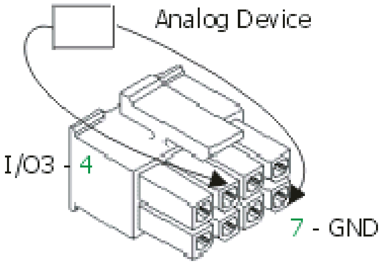
Port values are read by polling so a switch is preferred over a momentary button. I/O1 can be configured to trigger an interrupt for "Panic Button" applications, however the configuration mechanism requires a special support application (PortWatcher) which is not available at the time of this writing. When the program becomes available, there will be an update to this document to include integration details.

The pins will report a logic high (0xFF) on an input of +4.3 to +5.0 Volts. There is an internal pull-up resistor to provide a high condition when the switch is open.

The pins report a logic low on an input of -0 to +0.4 Volts. Sinking the input pin to ground will yield a logic low (0x00) when the port is polled.

Analog to Digital Input

Pin 4 of the connector provides an 8-bit analog to digital converter.

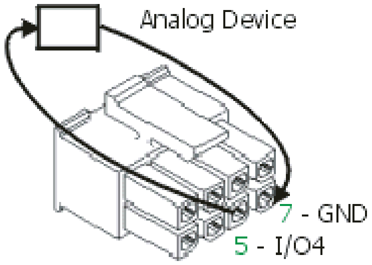


Pin numbers are shown in **Green**.

The input volatage range is 0 to +4.0V with leakage current of less than 5&mu;A. The 4-Volt range over 8 bits yields a digital step resolution of 0.0156V.

Digital to Analog Output

Pin 5 of the connector can deliver a variable voltage in the range of 0 to +3.94V, into a load of not less than 5kOhms.



Pin numbers are shown in **Green**.

The digital setting is a 6-bit value yielding 64 digital steps of about 0.061V each.

CAUTION - The analog device circuit must have a load impedance of *at least* 5kOhms.

- I/O Ports (top)
  - Overview
  - Hardware
  - **Read/Write Control**
    - Syntax
    - Connectivity
      - CDPD Mode
      - CSC Mode

Read/Write Control

This section covers the details of reading and writing the values on the I/O Ports. There are two aspects to this discussion: syntax, describing the format of queries, reports, and settings; and connectivity covering how to communicate with the port.

Syntax

The I/O Ports can be accessed much like the optional GPS module. It uses a TAIP-like statement based on the message identifier **IO**.

The command to query the ports is **>QIO<**. The response will be in the form:

>RIOAABBCCDD<

where each pair of characters is a hexadecimal value for the ports in order from I/O1 through I/O4.

Digital Input (I/O1 and I/O2)

The first two pairs in the response (**AABB**) will be either **00**, the circuit is closed; or **FF** indicating the circuit is open.

Analog to Digital Input (I/O3)

The third pair of characters (**CC**) represent the value of the ADC input. When left unconnected this may present a value from 00 to 04.

The input voltage range is 0 to +4.0V converted to an 8-bit value. This yields a digital step resolution of 0.0156V. Examples:

- +2.31V yields a reading of **94**
  (2.31 ÷ 0.0156 = 148.08 = 0x94)
- A reading of **B7** represents about +2.855 Volts
  (0xB7 = 183; 183 * 0.0156 = 2.8548)

Digital to Analog Output (I/O4)

The final of the four pairs of characters (**DD**) represents the setting of the DAC Output. It delivers a voltage in the range of 0 to +3.94V. The digital setting is a 6-bit value yielding 64 digital steps of about 0.061V each.

NOTE - It is the **high-order** 6 bits that are used. This is equivalent to a decimal step size of 4 (i.e. 0, 4, 8, 12 are the settings for the first four steps).

Examples:

- setting **3C** generates a voltage of about +0.915V
  (0x3C = 0b00111100; take the high order 6 bits:
  = 0b001111 = 15; 15 * 0.061 = 0.915V)
- For a voltage of +2.50V, set a value of **A4**
  (2.5V ÷ 0.061 = 40.98; 41 = 0x29 = 0b101001;
  shift to high-order bits: 0b10100100 = 0xA4)

(Shifting left two bits is equivalent to multiplying by 4.)

Setting Output

To issue a setting, the syntax is:

>SIOAABBCCDD<

where each pair of characters is a hexadecimal value for the ports in order from I/O1 through I/O4.

Where a port is an input, the value is ignored. There must be a dummy value for inputs in order to place the fields properly in the sentence. The letter pair **XX** may be used as a placeholder in the Set command.

Example: **>SIOXXXXXXC4<** will set the digital to analog output to the value 0xC4, which is equivalent to a +3V output.

Settings are not acknowledged, even if the GPS Reporting Mode has echo set to true. The user must issue a query following the setting to verify the values on the port.

NOTE - Remote access to make settings to the I/O Ports is not permitted by factory default settings. This can be re-configured using PortWatcher, an application not available at the time of this writing. The program, along with updated documentation should become available from the Sierra Wireless web site during the second quarter of 2000.

Connectivity

The I/O ports can be accessed locally and remotely over the CDPD network, CSC mode allows local access only.

CDPD Access

The I/O Port can be accessed much like an optional GPS module. Both remote and local connections are possible by sending the command statement in a UDP packet to port **21001**. For remote access, use the NEI of the MP modem as the IP address; for local access, use 192.0.2.1 as the IP address.

The command sentence does not support automatic updating, so the user must poll as needed by sending the query sentence packet for each poll. The MP replies to each query as an individual client/server session. There is no need to close a session on this port with the null TAIP sentence (**><**).

Remote access to make settings to the I/O Ports is not permitted by factory default settings. This can be re-configured using PortWatcher, an application not available at the time of this writing. The program, along with updated documentation should become available from the Sierra Wireless web site during the second quarter of 2000.

Local clients can make settings without restriction.

Local Access in CSC Mode

When the MP modem is in CSC mode, the I/O Ports can be accessed using AT commands.

Reading

The command to read the ports is **AT!IO?**. This will return the response: **AABBCCDD** where each pair of characters is a hexadecimal value for the ports in order from I/O1 through I/O4, as noted in Syntax above.

Setting

To set a value, issue the command **AT!IO=AABBCCDD** where the values to set on each port are as noted in Syntax above. The unit will not echo the setting. The user must explicitly read the new setting.

Document Map

Back to Product List

Back | Page Top | Next Page

o **Product Manual**
o **Installation Guide**
o **Configuration Guide**

o **Integration Guide**

  o Overview
  o GPS Option
  o I/O Ports
  o **Start Modes**
    o 1 - Wireline
    o 4 - CDPD
    o 7 - CSC
    o 17 - CSC Voice
    o 67-CDPD-SLIP
  o UDP PAD

o **Troubleshooting**
o **Service**
o **Contact Us**

Operating Modes

This section deals with the Operating and Start-up Modes possible for the MP200 series of modems. In some applications is useful to have the modem start operation in a particalur mode (CSC, CDPD, etc.).

Although some operating modes are available on the modem, the reset cycle of a power-up may not give direct access to the mode. On start-up only a limited number of operating modes are available.

The following Operating Modes are available on the models shown:

Mode	MP200	MP205	MP210
CDPD	**Yes**	**No**	**Yes**
CDPD-SLIP	**Yes**	**No**	**Yes**
CSC	**No**	**Yes**	**Yes**
Wireline	**No**	**Yes**	**Yes**
🟩	Available at Start-up		
🟦	Available but **NOT** at Start-up		
🟥	Not Available		

For MP205 and MP210 units with the Voice option, there is an additional mode (17) for CSC (AMPS) Voice. This mode is not available as a Start-up mode.

This section discusses the modes with reference to setting the register +WS46, using AT commands. For additional information on setting operation mode, either use CDPD Watcher, CSC Watcher, or consult the AT Command Reference (PDF).

---

o Start Modes (top)

  o **1 - Wireline**
  o 4 - CDPD
  o 7 - CSC
  o 17 - CSC Voice
  o 67-CDPD-SLIP

1 - Wireline

+WS46=1

This mode does not support any remote connectivity. It exists only as an adjunct to the CSC Mode in order to provide DTE-DCE auto-baud capability.

The modem powers up to this mode by default from the factory in order to allow connection to computers which may not be running the serial port at the default setting of 19200 bps.

Once the DTE-DCE connection is established with the first AT command, the modem can be placed in other modes and retain the serial port configuration.

o Start Modes (top)

- o 1 - Wireline
- **o 4 - CDPD**
- o 7 - CSC
- o 17 - CSC Voice
- o 67-CDPD-SLIP

4 - CDPD

+WS46=4

This mode is the default for the MP200 (CDPD only) model. In that model, it assumes a DTE-DCE serial connection at 19200 bps, 8 data, No parity, 1 stop. The data rate can be changed using the +IPR command (consult the AT Command Reference for details. The MP210 will carry over whatever rate was used at power up in Wireline or CSC mode.

In CDPD mode, the modem will attempt to acquire a channel and register with the network. This is automatic. Once registered, the modem is available for use on the network.

The modem remains in command state when started in this mode. Connection requires the user to set the connection service and go on-line or dial a UDP address.

There are several serial connection services available in CDPD mode, set in register +WS45. These are:

SLIP: +WS45=3

> The most common connection, in which the modem uses a SLIP interface across the local serial connection. The host computer must provide the IP stack services (usually with Windows Dial-up Networking). Data is transferred through the modem already in IP packets. With this setting, the modem is placed in data state by issuing the ATO (On-line) command.

PPP: +WS45=4

> Where the local host computer requires PPP connectivity, the service is available in the MP. This service requires some additional overhead and should only be selected where required. Otherwise, the service operates in the same manner as SLIP.

UDP PAD: +WS45=0

> The MP modem can provide UDP Packet Assembly and Disassembly (PAD) services. The local host serial connection is a simple asynchronous RS-232C link. The host can set auto-answer, or dial a UDP address and port to initiate a connection. The modem will accept data and form it into UDP packets for sending to the network. UDP packets arriving at the modem are opened and the content data is sent over the serial connection to the host. This service is discussed in greater detail in the next section.

---

o Start Modes (top)

- o 1 - Wireline
- o 4 - CDPD
- **o 7 - CSC**
- o 17 - CSC Voice
- o 67-CDPD-SLIP

7 - CSC

+WS46=7

This mode is only available on the MP205 and MP210. it offers DTE-DCE auto-baud capability.

If the modem powers up to this mode it will acquire a channel for CSC service and wait for a dial command or auto-answer condition.

To power-up in this mode issue the AT!ACM command as described in the AT Command Reference (PDF).

o Start Modes (top)

- o 1 - Wireline
- o 4 - CDPD
- o 7 - CSC
- **o 17 - CSC Voice**
- o 67-CDPD-SLIP

17 - CSC Voice

+WS46=17

This mode is only available on the MP205 and MP210 with the Voice option. It is **NOT** available as a power-up mode. It can only be selected by issuing the AT+WS46=17 command to set the mode register.

Voice calls are dialled and controlled with AT commands described in the AT Command Reference (PDF).

---

o Start Modes (top)

- o 1 - Wireline
- o 4 - CDPD
- o 7 - CSC
- o 17 - CSC Voice
- **o 67-CDPD-SLIP**

67 - CDPD-SLIP

+WS46=67

There is a special mode to power-up the modem directly to a CDPD SLIP connection with the modem on-line in data state. No AT commands need be issued when the modem powers-up in this mode.

The integrator must have a suitable IP stack and application on the local host computer to support data traffic. Be sure to allow the modem time to acquire a channel and register on the CDPD network before transmitting data.

To power-up in this mode issue the AT!CDPD command from Wireline or CSC modes; or set the register with AT+WS46=67.

Document Map

Back to Product List

Back Page Top Next Page

UDP PAD Services

The MP200 and MP210 offer a UDP packet assembly and disassembly (PAD) service in CDPD mode. This service is **not** a complete implementation of the UDP stack in that it does not respond to a network PING. In other respects, the service can originate a client session by dialling a server address and port, and can run a server session by answering an incoming packet addressed the to modem's NEI (IP address).

These services are useful for situations where an IP stack is not available on the local host computer. The local host uses a simple asynchronous RS-232C serial connection to the modem.

An example application is a telemetry device, such as a meter, that transmits ASCII data over a serial connection. The MP200 can be configured to power-up in CDPD with the UDP PAD selected. By using the auto-answer feature, the MP can be called by a remote host sending a UDP packet to the MP. This will open a session, placing the modem in data state. Any data from the telemetry device will be assembled into packets by the MP modem and forwarded to the remote (calling) host's IP address and port.

Configuring and using the UDP PAD service requires familiarity with AT commands and, in particular, an understanding of the +WS registers from +WS60 to +WS74 as described in the AT Command Reference (PDF).

When the UDP PAD service is selected (**+WS45=0**) the modem is in command state. It will enter data state when a call is originated by dialling or the modem answers an incoming call (packet).

Once in data state with the UDP PAD enabled, the modem accepts data from the host (DTE) and assembles it into packets. Packet assembly is largely transparent to the host but some assembly management features are available.

---

o UDP PAD (top)

o **Dialling**
o Answering
o Assembling
o Forwarding
o Escaping

Dialling - Client Sessions

The MP can be used to originate a UDP session by "dialling" an IP address and port using the **ATD** command. The modem will go on-line (into data state) and wait for a packet to send or one to arrive. While the session is open, only traffic from the dialled server will be accepted by the MP.

The local host can compose packets and forward them to the network. Packets from the called server will be delivered to the local host.

To close the session, the local host must leave data state by issuing TIES or toggling DTR (if configured with **AT&D1** or **AT&D2**), and then "hang up" using **ATH**.

---

o UDP PAD (top)

- o Dialling
- **o Answering**
- o Assembling
- o Forwarding
- o Escaping

Answering - Server Sessions

The MP modem can be configured to auto-answer incoming packets by opening a session when a packet arrives. This is handled by setting **ATS0=1**. The MP will open a session and enter data state when a packet addressed to the modem's NEI (IP address) arrives on any port.

NOTE - The MP modem will trap traffic on the following ports for internal application and processing as noted:

21000	GPS module (optional)
21001	I/O Ports
+WS221	Remote MOB access (default port is 5678)

When a packet arrives, the modem sends the CONNECT message, enters data state, and then sends the packet to the local host. The modem remains in data state until the local host issues TIES or toggles DTR (if configured with **AT&D1** or **AT&D2**). The session is closed when the local host "hangs up" using **ATH**.

---

o UDP PAD (top)

- o Dialling
- o Answering
- **o Assembling**
  - o Editing
- o Forwarding
- o Escaping

Packet Assembly

Starting a Packet

A packet is started when the host starts sending data to the modem. The modem will buffer the data as it assembles the packet. Should the buffer reach the maximum packet length, it is forwarded and a new packet buffer started. The packet can be edited prior to forwarding.

Real Time Data Entry and Editing

The modem can echo characters from the host back to it is cases where a terminal application is being used to allow individuals to type and send messages in real time. This is similar to Internet Relay Chat (IRC). Setting **+WS62=1** will enable the echo (the default) and setting **+WS62=0** will disable it.

If this type of communication is being used, the modem can also optionally allow editing of the packet buffer. Setting **+WS72=1** (the default) will enable local editing of the data before it is forwarded to the network. This allows you to backspace using the character set in **+WS73** (the default is 8 <BS>. If local echo is also enabled then the modem will echo the backspace character, a space, and another backspace.

o UDP PAD (top)

- o Dialling
- o Answering
- o Assembling
- **o Forwarding**
- o Escaping

Forwarding a Packet

The modem closes and sends a packet when one of the following events occur:

1. The maximum packet length set in **+WS74** (default 1000) is reached. You may wish to set this value smaller if you are encountering too many packet errors and retransmissions. Setting it below 5 will preclude use of the TIES to exit data mode. See below for details.
2. The modem receives the PAD Primary Forwarding Character set in register **+WS64**. This character defaults to 13, the carriage return <CR>. The feature is enabled by default and can be controlled with a bit mask option set in register **+WS63**. The options are:
   0 Disabled
   1 The packet is terminated and the forwarding character is discarded.
   3 The forwarding character is included in the packet before the packet is closed and sent.
   The default option setting is 3.
3. The PAD Inter-Character Timer (**+WS70**) expires. This timer is disabled (set to 0) by default. It can be set to values from 0.1 to 25.5 seconds. If particularly short times are used, real time typing will be forwarded virtually as it is received. This would also mean that manually typing the TIES to escape data mode is virtually impossible as the packet is closed before the full character string is entered.

If you disable the primary forwarding character (**+WS63=0**) and the timer (**+WS70=0**), the only way to forward packets will be to fill the packet buffer. This is very strongly discouraged.

---

o UDP PAD (top)

- o Dialling
- o Answering
- o Assembling
- o Forwarding
- **o Escaping**

Escaping Data State Using TIES

The Time Independent Escape Sequence (TIES) is a method to shift the modem from data state to command state. It is enabled by setting **+WS60=1** (the default) and disabled by setting **+WS60=0**.

The escape sequence is the string "AT+++" ending with the Primary Forwarding Character (defined in **+WS64**) and where the "AT" must be in uppercase.

The complete sequence must fit within the current packet. If the maximum packet length boundary is reached in the middle of the TIES string, or another packet forwarding event occurs, then that part of the TIES string in the packet will be forwarded and not included in TIES checking.

The modem checks for the TIES string whenever the Primary Forwarding Character is received. It checks the previous five characters in the packet buffer for a match to "AT+++". If there is no match, the packet is processed normally. If the string is matched, the packet buffer is discarded and the modem switches to command state with an acknowledging OK.

Note that any partial packet assembly prior to reception of the TIES will be lost. To ensure any data in the packet buffer is not lost when the TIES is sent, you must ensure that one of the forwarding events described above has occurred prior to send the TIES. The easiest way is to send the Primary Forwarding Character at each beginning of the TIES string.

The TIES sequence must be terminated with the Primary Forwarding

Character (**+WS64**), which is usually the carriage return <CR>. If the Forwarding Character Feature Mask (**+WS63**) is set to 0 (zero) (disabling forwarding of packets on receipt of the character) the TIES *can* still be used and still requires the Primary Forwarding Character to terminate the TIES string.

To ensure that you can enter the complete string, you cannot set the maximum packet length less than 6. You must also provide sufficient time in the PAD Inter-Character Timer to enter each character. If this is to be manually typed, the value should be set quite high (or disabled altogether). You must also avoid setting the PAD Primary Forwarding Character (**+WS64**) to one of the three characters in the TIES string (A=65 ,T=84 ,+=43).

When returned to command state, the local host can end the UDP session by issuing **ATH** to "hang up", or return to the session PAD (data state) with the on-line command **ATO**.

Back Page Top Next Page

Document Map

Back to Product List

- **Product Manual**
- **Installation Guide**
- **Configuration Guide**
- **Integration Guide**
- **Troubleshooting**
  - GPS Option
- **Service**
- **Contact Us**

Troubleshooting

For the most up-to-date and detailed troubleshooting tips, visit the Sierra Wireless MP200 website.

The most common cause of problems with the MP200 modem is with connectors and cables or basic configuration. Please note the following:

- A variety of problems can be caused by installation and wiring issues. Refer to the Installation Guide and particularly the section on installation of the power harness for detailed instructions.
- Failure to register on a CDPD network is frequently caused by the way the modem is configured. The Configuration Guide provides details on using WirelessExpert and Toolkit to properly configure your modem.

Always check the connectors and cabling before calling Technical Support. The table below provides you with some suggestions to help you solve specific problems. If you are unable to solve a problem with the MP200 after reading this section, contact the Sierra Wireless Technical Support Department for assistance.

Problem	Suggestion
The LED on the modem does not light.	This indicates that there is no power to the modem. Ensure that it is installed such that the white and red wires of the power harness receive 12 volts from the power supply. (See the Installation Guide for details on how to install the power harness.) Note that the white ignition sense wire should **not** be connected directly to the red wire.
The first screen of WirelessExpert displays... **`WirelessExpert was unable to communicate with the modem on COMx. Please make sure that...`**	Check that the green LED on the modem is on. If not, see the note above. Verify that you selected the correct COM port and that the modem is securely attached to the COM port. Verify that you selected the correct modem model. Note that the face plate reads **MP200** for the MP210, MP205, and MP200 models. The correct model number is printed on the white label on the back of the modem, and failure to enter the correct model causes WirelessExpert to

	fail in detecting it. Ensure that the cable used to connect the modem to your computer is a standard serial cable with a standard DB9 connector. The cable may be of the correct type and still be faulty. If another serial cable is available, try swapping the cable.
In WirelessExpert the test: **`Establish Dial Up Networking Connection`** fails (as indicated by a red X).	This may be due to a known issue (related to Winsock 2.0) in Windows 95 and 98. The solution is described on the Microsoft web site.
In WirelessExpert the test: **`Scan for valid CDPD channel`** fails (as indicated by a red X).	This may be due to poor coverage. That is, you are in an area where the signal is weak, or, where no CDPD network is available to you. You may need to go to a different area to obtain service.
In WirelessExpert the test: **`Register with CDPD network`** fails (as indicated by a red X). Watcher reports: **`Registration denied`**, or **`Registration failure`**, or **`Not authorized for network`**, or **`Authentication failure`**	Failure to register may indicate a problem with your account. Verify that the correct NEI and side preference were entered by re-running WirelessExpert and checking your entries. This may also indicate that you are outside the area served by your cellular Service Provider. If you are in an area where you expect to be "roaming", and are unable to register, it may be due to the way the modem is set up in Toolkit. The Service Provider Settings in Toolkit can be configured to prevent the modem from registering in areas served by particular carriers. When you obtain a new account from a Service Provider, you must register on their network within a specified time period. (The time period varies betwen Service Providers but is often about 72 hours. This is a security measure to prevent unauthorized use of your account.) If you have failed to register within that time, you will not be able to register until

	your credentials are reset. To have your credentials reset, contact your Service Provider.
In WirelessExpert the test: **`Ping the network`** fails (as indicated by a red X).	**Note:** This test is only valid where the MP200 is being used for internet access. If the modem is not being used for this purpose, it is irrelevant whether the MP200 passes. If you are using the modem for internet access, failure of this test may indicate that the wrong DNS, or no DNS, has been entered. To check this, re-run WirelessExpert and ensure that the correct DNS is entered in the CDPD configuration screen. This test may fail only because the ping requires more time than WirelessExpert allows. Try running Watcher and if no other problem occurs, you can ignore the failure of this test. Poor signal strength can also cause this test to fail. You might want to try moving to an area with better signal strenth.
In WirelessExpert the test: **`Placing modem in circuit switched mode`** fails (as indicated by a red X).	Re-run WirelessExpert and verify your entries. If it fails repeatedly, call Technical Support.
In WirelessExpert the test: **`Acquiring Cellular Service`** fails (as indicated by a red X).	This may be due to poor coverage. That is, you are in an area where the signal is weak, or where no circuit switched cellular service is available to you. You may need to go to a different area to obtain service.
In WirelessExpert the test: **`Dialing a number`** fails (as indicated by a red X).	This may indicate a problem with your cellular account. Re-run WirelessExpert and verify that the correct NAM, side preference, and Home System ID have been entered. If so, contact your Service Provider to ensure you have an active account.
Watcher reports: **`No response from modem`** in the status bar.	Try refreshing the screen by pressing <F5>.

Unable to web browse.	Verify that the correct DNS is entered in WirelessExpert. Check your browser settings to ensure proxy servers are **not** enabled. Ensure that your Service Provider has **not** restricted your access to the internet.

Previous Section Page Top Next Page

Document Map

Back to Product List

o Product Manual
o Installation Guide
o Configuration Guide
o Integration Guide
o Troubleshooting

o Service

- o Contact Us
- o Get Service
- o Warranty

Warranty and Customer Service

For technical support of third-party accessories used with the MP200 radio modem, contact the accessory vendor directly. Sierra Wireless, Inc. does not provide support for these components.

Customer Service Contacts

Help Desk	Toll Free:	1-877-231-1144 (U.S. and Canada)
	Phone:	(604) 231-1128
	Hours:	06:00 - 17:00 Pacific Time
	Email:	support@sierrawireless.com
Sales Desk	Phone:	(604) 231-1100
	Hours:	08:00 - 17:00 Pacific Time
	Email:	sales@sierrawireless.com
Post	Sierra Wireless, Inc. 13575 Commerce Parkway Richmond, BC Canada V6V 2L1	
Fax	(604) 231-1109	
Web	www.sierrawireless.com	

---

o Service (top)

- o Contact Us
- **o Get Service**
  - o Report Form
- o Warranty

Getting Service

In the event of equipment malfunction, Sierra Wireless, Inc., or one of its authorized agents should perform all repairs. It is the responsibility of users requiring service to report the need for service to Sierra Wireless, Inc. or to one of its authorized agents.

For warranty service or out-of-warranty repair:

1. Contact the Help Desk to determine the nature of the problem. If return of the product is required they will help you with the rest of this process.
2. Obtain a Return Material Authorization (RMA) number from the Sierra Wireless Help Desk.
3. Print and fill out the Problem Sheet (PDF). A MS Word version is available if you prefer.
   Remember: the more detailed your description of the problem, the faster your modem can be diagnosed and repaired.
4. Return the equipment, with the Problem Sheet enclosed, shipping pre-paid, to the address specified by the Customer Service Representative.

---

o Service (top)

- o Contact Us
- o Get Service
- **o Warranty**
  - o Registration

Warranty

Sierra Wireless, Inc. warrants the MP200 Series radio modem against all defects in materials and workmanship for a period of three (3) years from the date of purchase.

The sole responsibility of Sierra Wireless, Inc. under this warranty is limited to either repair or, at the option of Sierra Wireless, Inc., replacement of the radio modem. There are no expressed or implied warranties, including those of fitness for a particular purpose or merchantability, which extend beyond the face hereof.

Sierra Wireless, Inc. is not liable for any incidental or consequential damages arising from the use, misuse, or installation of the MP200 Series radio modem.

This warranty does not apply if the serial number label has been removed, or if the radio modem has been subjected to physical abuse, improper installation, or modification.

Warranty Registration

To register the warranty visit our web site and register on-line from the REGISTER option on the main tab. Alternatively, you can complete and mail or fax the registration card provided in the package.

Previous Page Page Top Main Page

Document Map

Back to Product List

MP200

Product Manual Document Map

Welcome

- Overview
  - Components
- Safety & Notices
  - Hazards
    - Antenna Requirements
  - Regulatory
  - Patents & Trademarks
- Specifications
  - Radio Modem
  - Environmental

Installation Guide

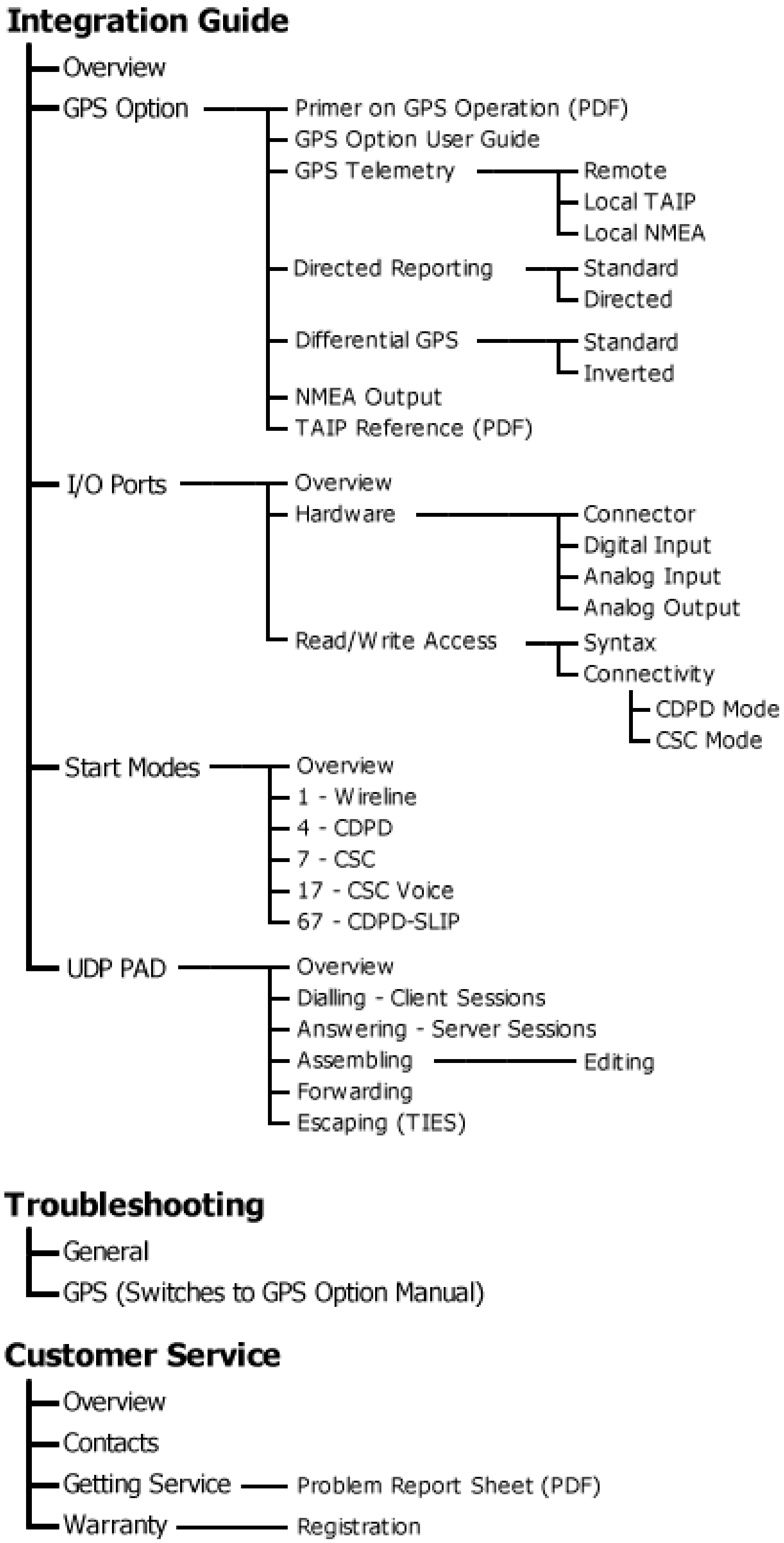
- Overview
- Equipment Requirements
- Mounting
  - Locations
  - Instructions
- RF Antenna
- Power Harness
  - Ignition Options
  - Wire Splicing
  - Crimp Terminals
  - LED Indicator
- Serial Cable
- Handset
- I/O Devices
- GPS Installs
  - Differential GPS

Fixed Location Installation

- Location Selection
- Antenna
  - Grounding
- Power Cable
  - Ignition Sense
- I/O Cable
- Computer Cable
- Speaker

Configuration Guide

- Overview
  - Circuit Switched Cellular (CSC)
  - Cellular Digital Packet Data (CDPD)
  - MP200 Models
  - Accounts
  - Roaming
  - Software
- System Req.
  - Win 95 OSR 2 Version
  - Win NT SP5 Version
- Information Req.
  - By Service Provider
  - From Service Provider
    - CDPD Accounts
    - CSC Accounts
- Software Install
  - Windows 95/98
    - Preparation
    - MP200 Software
    - Windows Components
  - Windows NT
    - Preparation
    - MP200 Software
    - Modem Profile
    - Dial-Up Networking
  - Windows 2000
    - Preparation
    - MP200 Software
    - Modem Profile
- WirelessExpert
  - When to Run
  - Configuring With
- CSC Watcher
  - Monitor Service
  - Signal Strength
  - Channel
  - Exiting
  - Exiting to CDPD
- CDPD Watcher
  - Monitor Connection
  - Registration Status
  - Signal Strength
  - Channel
  - In Background
  - Menu Options
  - Message Logging
    - Log Messages
- Toolkit
  - vs. WirelessExpert
  - Starting Toolkit
  - CDPD Account Profile
  - CSC Account Profile
  - Power Management
  - SPNI Numbers
  - Delayed Power Off
  - CDPD Sleep



Integration Guide

- Overview
- GPS Option
  - Primer on GPS Operation (PDF)
  - GPS Option User Guide
  - GPS Telemetry
    - Remote
    - Local TAIP
    - Local NMEA
  - Directed Reporting
    - Standard
    - Directed
  - Differential GPS
    - Standard
    - Inverted
  - NMEA Output
  - TAIP Reference (PDF)
- I/O Ports
  - Overview
  - Hardware
    - Connector
    - Digital Input
    - Analog Input
    - Analog Output
  - Read/Write Access
    - Syntax
    - Connectivity
      - CDPD Mode
      - CSC Mode
- Start Modes
  - Overview
  - 1 - Wireline
  - 4 - CDPD
  - 7 - CSC
  - 17 - CSC Voice
  - 67 - CDPD-SLIP
- UDP PAD
  - Overview
  - Dialling - Client Sessions
  - Answering - Server Sessions
  - Assembling
    - Editing
  - Forwarding
  - Escaping (TIES)

Troubleshooting

- General
- GPS (Switches to GPS Option Manual)

Customer Service

- Overview
- Contacts
- Getting Service
  - Problem Report Sheet (PDF)
- Warranty
  - Registration

Problem Report Sheet

If you are having trouble with your modem, please contact:

Sierra Wireless Technical Support **604-231-1128** (6am to 5pm Pacific Time).

If it is deemed necessary to return the modem for repair, you will be given an RMA number, and asked to fill out this form and return it with the modem.
Do not return the modem without obtaining an RMA number.

Sierra Wireless Inc.
13575 Commerce Parkway, Suite 150
Richmond, BC V6V 2L1
Canada

Tel. 604.231.1100
Fax. 604.231.1109

Date:

RMA No.

Company Name			
Contact			
Address			
City			
State/Province		Zip/Postal Code	
Telephone		Fax	
Email			
Product			
Serial Number		ESN:	206 -
Host Computer Make		Model	
Operating System			

To ensure prompt repair, please provide as much detail as possible.

Problem Description